INVESTIGATING THE COSTS AND VALUE TO SMALLHOLDER FARMERS PARTICIPATING IN THE DECIDUOUS FRUIT VALUE CHAINS IN SOUTH AFRICA

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DECLARATION

By submitting this research I, Mfusi Mjonono, declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

M Mjonono March 2020

DEDICATION

With profound appreciation to Almighty God, I dedicate this work to my entire family, especially my children, Akho Mjonono and Abulele Mjonono, who always inspire me to work hard.

A special dedication to my parents, for their wisdom and great upbringing.

To all those with an interest in agricultural development of smallholder farmers in South Africa and beyond.

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ABSTRACT

Integration and development of smallholder farmers into the deciduous fruit value chains continues to be a challenge and smallholder farmers are struggling to compete with large commercial producers. As in any other value chain involving smallholder farmers, the most cited reason for the challenge of value chain participation by smallholder farmers is the issue of transaction costs. Various studies have looked at direct costs associated with participation in the value chain. However, these studies have not investigated other hidden or intangible costs such as, economics costs, regulatory and compliance costs, social and cultural costs, and psychological costs, which may have a tremendous effect on farmer's participation in the value chain. This leaves a knowledge gap in understanding the overall costs incurred by smallholder farmers participating in the value chain. A framework was developed and transformed into a cost model with corresponding hypotheses that could be used to study these cost constructs. In this framework, an endogenous latent variable "cost to participate" was developed with five exogenous latent variables: direct financial costs, economic costs, psychological costs, regulatory and compliance costs, and social and cultural costs. It was hypothesised that all these costs have a positive relationship with the cost of participating in the value chain and may determine participation.

Participation of smallholder farmers in the value chain is also determined by the ability to capture value, which is created at various stages and by different actors along the value chain. Again, various studies have focused on evaluating smallholder farmer upgrading, which is referred to as functional value, as a benefit in participating in the value chain. However, little attention has been given to the capture of their experiential value of participating in the value chain. Evidence on experiential value for the smallholder farmers participating in the value chain is important in order to understand the overall value proposition. On this premise, a framework and experiential value model was developed in order to empirically examine the experiential value for smallholder farmers participating in the value chain. In this framework, an endogenous latent variable, experiential value was developed, with five exogenous latent variables: act experience, feel experience, relate experience, return on investment, satisfaction and think experience. Five hypotheses were developed in order to assess these constructs included in the model.

Ability to capture value, which is referred to as functional value in this study, requires financial investments and therefore access to finance becomes crucial in the process of smallholder farmer integration in the value chain. Access to finance is often cited as a major obstacle for smallholder farmer's participation in the value chain. A conceptual framework was developed and transformed into a functional value model with four hypotheses in order to examine these constructs. This framework consists of an endogenous latent variable, functional value, with four exogenous latent variables: product upgrading, process upgrading, functional upgrading and access to finance.

To analyse the results of the models, a Partial Least Squares Structural Equation Modelling technique was used with Smart PLS software and Statistical Package for the Social Sciences. Structural Equation Modeling (SEM) is an important statistical tool in social and behavioural sciences and has an ability of modelling nomological networks by expressing theoretical concepts through constructs and connecting these constructs via a structural model to study their relationships. Due to the fact that the study examined investigative research constructs that were less developed or still need theoretical development, the Structural Equation Modeling technique was found to be appropriate.

The study used primary data collected from 101 smallholder farmers participating in the deciduous fruit value chain from three provinces of South Africa, namely Western Cape, Eastern Cape and Northern Cape because these provinces produce 96% of the deciduous fruit in South Africa. Deciduous fruit industry was chosen because it is one of the important high value chains within the South African agriculture. Deciduous fruit refers to the fruit trees that lose their leaves during winter. The deciduous fruits includes apples, peaches, pears, nectarines, plums, peaches, apricots and cherries. The deciduous fruit industry has well developed value chains and is labour, capital and technology intensive which makes it very challenging for new entrants.

The results of the cost model, indicated that direct financial costs, psychological cost and regulatory and compliance costs have a positive and significant relationship with cost to participate in the value chain. It is therefore concluded that these constructs constitute a good measure of the cost to farmers of participating in the value chain and argued that the costs highlighted above constitute a more complete construct to consider and could be a determining factor for participation.

On the experiential value model, the study revealed that feel experience, satisfaction and think experience have a positive and significant relationship with experiential value and therefore are the distinct dimensions of experiential value. It is therefore inferred that these three constructs – feel experience, satisfaction, and think experience – constitute a distinct measure of experiential value for smallholder farmers participating in the deciduous fruit value chain.

In the functional value model, all the constructs – product upgrading, process upgrading, functional upgrading and access to finance – had a positive and significant relationship with functional value. The results shown in this study indicate that through participation in the value chain, smallholder farmers gain access to the requisite investment possibilities through timely and affordable access to finance.

Based on the findings, smallholder farmers incur costs from participating in the value chain; therefore, there is a need for policy interventions focusing on reducing these costs. The study recommends lowering of transaction costs through use of digital innovation, improved coordination

and organisation of smallholder farmers' and collaborations between public–private institutions participation in the value chain. Improved coordination and organisation could also reduce the number of transactions for the processors and exporters in the value chain, thereby reducing the cost to farmers. Coordination with fellow producers to increase economies of scale for the supply of produce could also reduce transaction costs. Furthermore, coordination and organisation of smallholder farmers strengthens their voices and improves their bargaining power in the negotiation of contract schemes and funding/financing mechanisms, and thus reduces costs of participating in the value chain.

Collective action is a vital feature of public–private partnerships and can help to reduce transaction costs and promote participation of smallholder farmers in the value chain. There is a need for public–private partnerships within the value chain. This collaboration could include public institutions, agribusiness companies, financial institutions, non-governmental organisations, agro-enterprises, farmer organisations and individual farmers. Government should be supportive of these formations and have open channels of communication.

The development and integration of smallholder framers into high value chains necessitates a fundamental reconsideration of the role of government in policy making. In this study, it was found that access to finance is another dimension of smallholder farmer upgrading strategies. Government intervention could take the form of provision of a regulatory and legal framework, which is required for these mechanisms to function. Government could also play a role in co-financing seed money to facilitate the start-up of these instruments/mechanisms.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

AML	Anti-Money Laundering
AMOS	Analysis of Moment Structures
AVE	Average Variance Extracted
ARC	Agricultural Research Council
BFAP	Bureau for Food and Agricultural Policy
CASP	Comprehensive Agricultural Support Programme
CB-SEM	Covariance-Based Structural Equation Modelling
CIF	Cost Insurance and Freight
CIRAD	French Agricultural Research Centre for International Development
CR	Composite Reliability
CtC	Cost to Customer
CULDEVCO	Cultivar Development Company
DAFF	Department of Agriculture Forestry and Fisheries
DFDC	Deciduous Fruit Development Chamber
DFPT	Deciduous Fruit Producer Trust
DFIs	Development Financial Institutions
DIP	Delivery in Port
EU	European Union
FOB	Free on Board
FPMs	Fresh Produce Markets
FSPs	Financial Service Providers
GAIN	Global Agricultural Information Network
GAP	Good Agricultural Practice
GCC	Global Commodity Chain
GDP	Gross Domestic Product
GlobalGAP	Global Good Agricultural Practices
GVC	Global Value Chain
HTMT	Heterotrait-monotrait
IDC	Industrial Development Corporation
IFAD	International Fund for Agricultural Development
IFC	Intenational Finance Corporation
INRA	French National Institute for Agriculture Research
ITC	International Trade Centre
KYC	Know Your Client
LRAD	Land Redistribution for Agricultural Development

MAs	Market Agents
MTMM	Multitrait-multimethod
NAMC	National Agricultural Marketing Council
NFI	Net Farm Income
NIE	New Institutional Economics
PLS	Partial Least Squares
PPECB	Perishable Produce Export Control Board
PTCs	Proportional Transaction Costs
RoI	Return on Investment
SAAPPA	South African Apple and Pear Producers' Association
SADC	Southern African Development Community
SATI	South African Table Grape Industry
SATGI	South African Table Grapes Producers Association
SAPO	South African Plant Improvement Organisation
SEDA	Small Enterprise Development Agency
SEM	Structural Equation Modeling
SIZA	Sustainability Initiative of South Africa
SV	Shared Varience
TCE	Transaction Cost Economics
TEC	Transaction Economic Costs
TV	Tolerance Value
UK	United Kingdom
VIF	Variance Inflation Factor
WCDoA	Western Cape Department of Agriculture

CHAPTER 1
INTRODUCTION

1.1 BACKGROUND

Approximately 1.4 billion people who live under US$1.25 a day reside in rural areas and depend largely on agriculture for their livelihoods, while an estimated 2.5 billion people are involved in full- or part-time smallholder agriculture (IFAD, 2013; CGAP, 2014). For many low income rural households around the world, agriculture is an important source of livelihoods (IFAD, 2013; FARNPAN, 2013, FAO, 2005). In Sub-Sahara Africa, most people are relatively poor and nearly 70 percent of the population lives in rural areas (de Klerk *et al.,* 2013; FARNPAN, 2013; IFAD, 2013). Moreover, agriculture in the Sub-Sahara Africa is the mainstay of the rural economy and about two thirds of rural household income comes from on-farm agriculture (Jeiyol *et al.,* 2013; Davis *et al.,* 2014; de Klerk *et al.,* 2013). Globally, agriculture is vital for food security, poverty reduction and economic growth (IFAD, 2013, Carroll *et al.,* 2012, Irz *et al*., 2001; World Bank, 2008).

The development and productivity of the agricultural sector is therefore very essential (Kirsten *et al*., 2012, Victoria *et al.,* 2012). In Sub-Sahara Africa region, rural growth is slow and agricultural productivity is stagnating (IFC, 2014, FAO, 2005). The research conducted by IFC (2014) indicates that 85% of rural population lives on land that potentially can increase productivity. What leads to low productivity and low-income in agriculture is the limited use of natural resources (Jeiyol *et al.,* 2013; IFC, 2014). The limited use of natural resources, which lead to low productivity, is caused by multiple constraints (Word Bank, 2013; IFC, 2014). These constraints include inadequate or low expenditure on agriculture by public sector, poor extension services, poor market structures, lack of research and development, poor infrastructure and most importantly lack of access to financial services (Finmark Trust, 2010). The 2003 Maputo declaration stipulates that African countries must spend at least 10% of their public expenditure on agriculture and countries in the Sub-Sahara Africa seldom reach this target (de Klerk *et al.,* 2013). According to (de Klerk *et al.,* 2013; Iyanda, *et al.,* 2014), access to financial services in Sub-Sahara Africa appears to be still poor and very little is known about the supply and demand for financial services.

Enhancing smallholder farmers' productivity and competitiveness has been noted as a priority of the agriculture-for-development agenda (World Bank, 2008; Victoria *et al*., 2012). According to FAO (2013), smallholder farming agriculture is the main source of food in the developing world producing up to 80% pf the food consumed especially in sub-Saharan Africa and Asia. Smallholder farming therefore play a vital role in reducing food security and poverty in these communities (Zook, *et al.,* 2013; IFAD, 2013). The development of smallholder farmers is acknowledged as a key instrument towards rural poverty reduction in Africa (Shange, 2014; IFAD, 2013). However,

many farmers in particular smallholder farmers have many constraints, which range from technical skills, farm management skills and lack of capital resources (CGAP, 2014; Baloyi, 2010). These challenges prohibit these smallholder farmers from fully participating in high value chains and are expanded below.

1.1.1 Challenges faced by smallholder farmers

Poor physical infrastructure (off-farm and on-farm): Smallholder farmers lack physical infrastructure, which include roads, transport, water supply and irrigation, housing and fencing (Van Rooyen *et al.,* 1996). Cold storage rooms as well as storerooms to keep produce after harvest in good condition is often a problem. Quality of farm products is a major requirement in the market place and lack of post-harvest storage and processing facilities constitutes a huge barrier for smallholder farmers in the markets (Bianabe *et al.,* 2004). To produce optimally and to increase agricultural productivity, physical infrastructure on farms is very critical. Long distances on unmaintained roads and inappropriate transport are the contributors to high transaction costs. For efficient provision of good effective service to smallholder farmers, well maintained and accessible roads are very important. Lack of physical infrastructure is a significant limiting factor for the development and growth of smallholder farmers and certainly causes high transaction costs for these farmers (Van Rooyen *et al.,* 1996).

Lack of information and extension service: According to Oettle and Koelle (2003), in the long run, extension services and the role of extension officers determines the success and sustainability of development initiatives. The information and knowledge gained by farmers from extension officers determine their success in the future (Oettle *et al.,* 1998). The role of extension services is significantly important in dissemination information from government support programmes and funding initiatives to farmers. According to Bailey *et al.* (1999), poor or lack of provision of agricultural information is a huge barrier, which mostly limits agricultural development in various developing countries. Information needs of the smallholder farmers ranges from production techniques, market information, government support programmes and funding initiatives from government and finance institutions (Oettle *et al.,* 1998). Smallholder farmers typically lack information on product prices, quality requirements and to obtain this information is costly.

Lack of human capital and level of education: Smallholder farmers often have little education or no formal education. They lack technological skills and this act as a serious barriers in accessing useful information from institutions that provided support, finance and institution that disseminate technological information (World Bank, 2008). Many smallholder farmers lack management, financial and marketing skills. This typically limits the growth and graduation of smallholder farmers to commercial farmers (Van Rooyen *et al.,* 1996). With lack of these skills, farmers cannot meet marketing requirements (quality standards) financial needs (capital) and production levels (supply).

High transaction costs: Transaction costs include the costs of negotiations, searching costs, information, co-ordination, enforcement of contract monitoring. Smallholder farmers find themselves very much constrained with high transaction costs as they are often in remote areas far away from information, lucrative markets and finance institutions. Lack of knowledge and level of education of smallholder farmers becomes a predicament when negotiating for contracts and that leads to high transaction costs (Hobbs, 1997). Less negotiating skills of smallholder farmers entails accepting lower prices, which results in lower profit margins.

Limited access to capital: Another important barrier that prevents smallholder from being integrated in the value chain is limited access to capital. Smallholder sector is often side-lined by the formal financial institution and the most cited reason by the banks for not lending to smallholder farmers is risk inherent in agricultural production and high default risk (Owusu-Antwi *et al*., 2010). Furthermore, smallholder farmers usually lack assets considered as suitable collateral by financial intermediaries (Key & Runsten, 1999). Their household income is uncertain because of variability in output due to low per capita rural income and as such, they are prone to default in principal and interest repayments (Miller & Jones, 2010; Dorward, *et al.,* 2001). Due to small loans to individual smallholder farmers, this increases transaction costs which are related to searching information, screening and monitoring contracts (Dorward *et al.,* 2001; Spio *et al.,* 1997). Smallholder farmers have to invest in technology and equipment, farm assets, to meet the requirements of high value-adding supply chains (Sjauw-Koen-Fa, 2012). However, in developing world, smallholder farmers lack collateral and credit history in order to access to finance/credit.

1.1.2 Participation of smallholder farmers in high value chains

In any other value chains involving smallholder farmers, the most cited reason for the challenge of value chain participation by smallholder farmers is the issue of transaction costs (Barrett, 2008; Severine *et al*., 2014; Key *et al*., 2000; Makhura *et al*., 2001 and Goetz, 1992). Transaction costs are associated with search for information, negotiation with potential buyers, monitoring, coordination and enforcement of contracts (Coase, 1937) and these costs affect smallholder participation in the value chain. A major transaction cost the smallholder farmers face is the cost of searching for information (Shepherd, 1997, Janqwe *at al.,* 2010). Makhura (2001) argues that smallholder farmer's bargaining (negotiation) is highly affected by the inability to access main markets and their less experience in marketing. Montshwe (2006) states that searching costs include costs of finding a buyer and if farmers takes long looking for an ideal buyer, searching costs increases and eventually increases the transaction costs. Due to high searching cost and ultimately high transaction costs, smallholder farmers eventually decide to sell their products at the farm gate and accept lower prices and therefore lower profit margins.

Participation of smallholder farmers in the value chain is also determined by the ability to capture value. Value addition is created at various stages and by different actors along the value chain

(Trienekens, 2011). Value added could be in different forms such as quality, innovativeness, cost reduction, delivery times and flexibility. Farmers who participate in a value chain add value to their product as it moves from the beginning of the chain towards the final consumer. In exchange for adding this value, all participants receive an economic rent (Kaplinsky, 2000). Economic rent is an incentive for or benefit of participation in the value chain. Trienekens (2011) argues that in order for farmers to capture economic rents, they have to meet a number of conditions, such as the infrastructure to bring the products to a market, availability of resources, knowledge and capabilities of chain actors and these contribute to increased transaction costs. However, it is argued that upgrading requires financial investment and therefore access to finance becomes crucial in the process of smallholder farmer integration in the value chain. Smallholder agriculture in developing world need to upgrade to achieve its full potential and participate in high value chains (Sjauw-Koen-Fa, 2012). Smallholder farmers need capital investments to improve the infrastructure of smallholder farmers to lower transaction costs (Hebebrand, 2011). Although traditionally, functional value takes four forms of upgrading strategies (product, process, functional upgrading and inter-chain upgrading), as argued by Kaplinsky & Morris (2001), it is argued that access to finance contributes to functional value. However, the reality is that many smallholder farmers often face liquidity and credit limitations (Fernandez-Stark and Bamber, 2012) and have no access to formal finance networks. This confines their potential to make the crucial investments to upgrade in the value chain (World Bank, 2008). According to the International Finance Corporation (2014), access to financial services is vital for farm investments to increase productivity and enhancement of post-harvest practices and thereby enable better access to national and international markets. Hazell *et al.* (2007) also argues that access to affordable financial services is important for smallholders to meet investment and working capital requirements.

South African smallholder farming sector is not immune from the challenges mentioned above. There is also a challenge of integration and development of smallholder farmers into the high value chains. One of these high value chains is the deciduous fruit value chain. Deciduous fruit industry is one of the important high value chains within the South African agriculture. Deciduous fruit refers to the fruit trees that lose their leaves during winter. The deciduous fruits includes apples, peaches, pears, nectarines, plums, peaches, apricots and cherries. The South African deciduous fruits industry is important to the South African economy and has an annual turnover of R12, 35 billion. It is a major contributor to the annual Gross Domestic product (GDP) of the country. Although the deciduous fruit industry makes such an important contribution to the South African agricultural sector, there is also a challenge of integration and development of smallholder farmers into the deciduous fruit value chains. There is still a challenge of poor or inadequate physical infrastructure, low levels of education and access to capital. For example, D'hease *et al.* (2003) argues that roads and physical infrastructure in many farms in South Africa is in dire state and possess a huge barrier for farmers (D'hease *et al.,* 2003). Machethe (2004) also argued that

smallholder farmers in South Africa are often found in remote areas where the aforementioned facilities are lacking and are a major constraint. According to Machethe (2004), communication links, transportation and well maintained access roads are prerequisites to farm participation on markets and accessing financial resources. Against this background, this study identified the research problems described in the following section.

1.2 PROBLEM STATEMENT

Participation of smallholder farmers in high value chains such as the deciduous fruit chain is still a challenge and smallholder farmers are struggling to compete with the commercial large producers. We elaborate more on the challenges which inhibit the meaningful participation of smallholder farmers below.

The first challenge is that smallholder farmers have to comply with all the requirements of high value chains, which include standards and regulations (Miller & da Silva, 2007; Kaplinsky, 2000; Baloyi, 2010) and these increase their transaction costs (Maltsoglou *et al*., 2005; Makhura, 2011). Various studies (Makhura, 2011; Maltsoglou and Tanyeri-Abur, 2005; Severine *et al*., 2014; Barrett, 2008; Key *et al*., 2000; Makhura *et al*., 2001; Goetz, 1992; Mabuza, 2013; Okoye *et al.*, 2016) looked at direct costs associated with participation in the value chain. These costs includes administration costs, costs for time spent communicating, negotiating and monitoring contracts, and costs related to the storage and transportation of produce. However, these studies have not investigated other hidden or intangible costs such as regulatory and compliance costs, social and cultural costs, bonding costs (costs of being part of the network to improve access) and psychological costs, which have a tremendous effect on farmers. These studies (Makhura, 2001; Maltsoglou and Tanyeri-Abur, 2005; Severine *et al*., 2014; Goetz, 1992; Mabuza, 2013; Okoye *et al.*, 2016) focused on investigating and documenting direct transaction costs and very little is known about other hidden or intangible costs to smallholder farmers participating in the value chain. This leaves a knowledge gap in understanding the overall costs incurred by smallholder farmers participating in the value chain. This could lead to incorrect interventions, misalignment in policy design and incorrect targeted intervention in value chain development involving smallholder farmers. Moreover, recent literature on transaction cost affecting participation of smallholder farmers is very scant, except few studied by Mabusa (2013), Okoye *et al.* (2016) and Jangwe (2011). Against this backdrop, there is a need to understand overall costs of participating and to provide an understanding and a balanced analysis of overall costs for smallholder farmers that may influence their decision to participate in the value chain as well as to establish a comprehensive theoretical and analytical foundation.

The second challenge is the smallholder farmers' ability to capture value. Various studies such as Trienekens (2011), Dunn *et al*. (2006), Fromm (2007) and Makosa (2015) have focused on evaluating smallholder farmer upgrading, whichin this study is referred to as functional value, as a benefit of participating in the value chain. This evaluation of functional value includes measuring

outcomes in terms of unit production, physical yield, product prices and enterprise profits. The literature to date, as will be shown in chapter 3, captures value at the product level, which in this study is referred to as functional value, but neglects experiential value at the level of the farmer. This study argues that upgrading refers to functional value, which includes the improved or gained value in a more physical sense (e.g. higher prices per product sold). This does not include experiential value, which is intrinsically gained by the smallholder farmer, and is driven by improved learning and experience, confidence gained, and control. Little attention has been given to the capture of their experiential value to participate in the value chain. Evidence on experiential value for smallholder farmers participating in the value chain is important in order to understand the overall value proposition. Moreover, to capture function value, smallholder farmers requires financial investment, and therefore access to finance becomes crucial in the process of smallholder farmer integration in the value chain. Access to finance is often cited as a major constraint for smallholder farmers' participation in the value chain (IFC, 2014; Onumah, 2003; Chisasa, 2014). For example, IFC (2011) argue that lack of finance reduces the efficiency of agricultural production by preventing smallholder farmers from adopting better technologies and complying with the requirements of modern value chains. On this premise, there is a need to investigate access to finance as another dimension of functional value.

From the challenges mentioned above, we identified the objectives for the study which are expanded in Section 1.3.

1.3 OBJECTIVE OF THE STUDY

In view of the problems discussed above, the broad objective of the study is to investigate costs and value for smallholder farmers participating in the deciduous fruit value chains in South Africa. This will be achieved through the following specific objectives:

1. To investigate what constitutes the costs to smallholder farmers participating in the deciduous fruit value chain.
2. To investigate the experiential value to smallholder farmers participating in the deciduous fruit value chain.
3. To investigate the functional value to smallholder farmers of participating in the deciduous fruit value chain.

1.4. Definition of key terms/constructs/concepts

This study contains certain key concepts and constructs. Although these concepts and constructs are discussed in detail in Chapter 3, they are briefly introduced in this early Chapter of the dissertation to allow the reader to make sense of what is presented in the following Chapters.

1.4.1 Value chain

The Value Chain concept was first developed in 1985 by Michael Porter, in "Competitive Advantage," (1) though his seminal work on the implementation of competitive strategy to achieve superior business performance. In agriculture, "A 'value chain' identifies the set of actors and activities that bring a basic agricultural product from production in the field to final consumption, where at each stage value is added to the product" (FAO, 2010, page 2). A typical value chain in agriculture would include activities that bring a basic agricultural product like wheat or vegetables or deciduous fruit from obtaining inputs and production in the field to the consumer..

1.4.2 Value addition

In general, adding value is the process of changing or transforming a product from its original state to a more valuable state (Sharma *et al.,* 2014). Value added may be related to innovativeness delivery times, quality, costs, delivery flexibility (Trienekens, 2011).

1.4.3 Smallholder farmers

The definition of smallholders is inconsistent and problematic. It often varies from country-to-country and agro-ecological zones (Dixon *et al.,* 2003). The term "smallholder" is extensively used but is often confused, with no single or agreed meaning (Cousins, 2013). The term "small" is a relative term and is dependent of a particular farming context (PLAAS, 2013, Dixon *et al.,* 2003). In South Africa, there are various different general definitions for smallholder farmers and the terminology used to define these farmers has been inconsistent and used interchangeably (Pienaar, 2013; Ortmann & Machethe, 2003). In South Africa the term "smallholder" is often used to refer to black producers who are characterised by non-productive, less resource endowments and non-commercial (Kirsten & van Zyl, 1998). (DAFF, 2012) defines smallholder farmers as farmers whose yields achieved in agricultural production are low and erratic and who produce more product than their own requirements and sell excess, either directly to consumers or supply products to collection centres or co-operatives, which generally process and market the products.

1.4.4 Transaction costs

"In a food marketing setting, transaction costs are the whole array of costs associated with buying, selling, and transferring ownership of goods and services" (Jaffee, 1995, page 28). According to Coase (1988), transaction cost typically include search and information costs, bargaining costs and policing and enforcement costs. Transaction costs may include legal fees, communication fees, the information cost of finding a market or price, or the cost labour necessary to bring a good or service to market. In economics 'transaction costs', refers search costs involved in transactions (the costs of locating information about opportunities for exchange); negotiation costs (the costs of negotiating terms); and enforcement costs (the costs of enforcing the contract) (North and Thomas, 1973, page 93).

1.4.5 Perceived Value

Various definitions of 'perceived value' have been presented in the marketing literature, including those of Holbrook (1999), Woodruff (1997) and Zeithaml (1988). One of the most commonly cited definitions of pereceive value is that supplied by Zeithaml (1988). Zeithaml (1988, page 14) defined "**perceive value** as the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given". Value is also defined as a straightforward relationship between perceived benefits and perceived costs and can be expressed as, Value = Benefits / Cost.

1.4.6 Experiential value

Experiential value is defined as "A perceived, relativistic preference for product attributes or service performances arising from interaction within a consumption setting that facilitates or blocks achievement of customer goals or purposes " (Van Oppen *et al.,* 2011, page 3). Experiential value refers to customers' perceptions of products or services through direct use or indirect observation (Mathwick *et al.,* 2001).

1.4.7 Functional value

Functional value relates to the product's or the service's ability to perform its utilitarian purpose. Woodruff (1997) identified that functional value can have several dimensions. One dimension is performance related and relates to characteristics that would have some degree of measurability, such as appropriate performance, speed of service, quality, or reliability (Sweeney, 2008).

1.4.8 Deciduous fruit

Deciduous fruit refers to the fruit trees that lose their leaves during winter. The deciduous fruits includes apples, peaches, pears, nectarines, plums, peaches, apricots and cherries. Deciduous fruit can also be grouped into three types, namely: some fruit, stone fruit and table grapes.

1.5 JUSTIFICATION FOR THE STUDY

This study attempts to investigate overall cost drivers and value structure that may influence participation of smallholder farmers in the value chain. The study is important in filling the gaps in the literature on costs and value to farmers participating in the value chain. Although there are various studies such as Wang and Lin (2010), Conway and Leighton (2014) and Maghnati *et al.* (2012) that investigated experiential value, a similar study using the same conceptual framework in the context of investigating experiential value for smallholder farmers' participation in the agricultural value chain is not yet available in South Africa. Many of the studies on experiential value conducted so far have focused on many sectors, except agriculture. Moreover, the evidence on value capture by smallholder farmers is not well researched and documented (Dunn, 2014;

Trienekens, 2011), and, in general, the research on experiential value is limited (Wu & Liang, 2009; Yuan & Wu, 2008). This study therefore attempts to provide a clear picture on the experiential value dimensions of smallholder farmers participating in the agricultural value chain. The contribution of this study is therefore an expansion of the transaction costs and experiential value approaches that may shed more light on the drivers of inclusion and exclusion of smallholder farmers in value chains. It is envisaged that the findings of the study will be useful in providing an information base on costs and value and ultimately how to successfully integrate smallholder farmers into the value chain.

1.6 ORGANISATION OF THE CHAPTERS

The dissertation is organised as follows: Chapter 1 provided the background, problem statement, objectives, definition of key terms/concepts and justification of the study. Chapter 2 provides a background on the deciduous fruit industry and the value chain in South Africa. Chapter 3 presents the foundation of the study by reviewing concepts and literature relating to costs and value for smallholder farmers and thus provides a conceptual framework that form the basis for analysis. Chapter 4 provides a broad outline of the methodology followed in the study. Chapter 5 provides the results and discussion for the study and is organised around three main themes surrounding the participation of smallholder farmers into the deciduous fruit value chains in South Africa. These themes are costs, functional value and experiential value to the smallholder farmers participating in deciduous fruit value chains in South Africa. The value is broken into functional value and experiential value as justified in Chapter 3. Chapter 6 provides the conclusions, recommendations, limitations of the study and outlook for future research.

CHAPTER 2
BACKGROUND OF THE DECIDUOUS FRUIT INDUSTRY AND VALUE CHAIN IN SOUTH AFRICA

2.1 INTRODUCTION

This chapter provides the context of the study. The chapter begins by giving a small background of the deciduous fruit industry in South Africa, then gives a snapshot on the production, market orientation, employment, value chain and smallholder farmers within the deciduous fruit industry.

2.2 BACKGROUND OF THE SOUTH AFRICAN DECIDUOUS FRUIT INDUSTRY

The South African deciduous fruit industry is an important industry within South African agriculture. It is an export-orientated industry with large volumes being exported annually (NAMC, 2018). On average, 44% of the total production is exported, 26% goes to the domestic market and 29% is processed (Midgley, 2016). During the 2016/17 season (October to September), about 50.3% of deciduous fruit produced was exported and approximately 79.6% of the gross value from deciduous fruit came from export earnings (DAFF, 2016a). The deciduous fruit industry contributes 12, 35 billion to the agricultural gross domestic product (GDP) of the country. The South African deciduous fruit industry comprises mainly stone fruit (peaches, apricots, plums and nectarines), pome fruit (apples and pears), and dried and table grapes.

Table 2.1: Gross income from major horticulture products (2017-2018)

Horticulture	2017		2018	
	Rand in millions	%	Rand in millions	%
Vegetables (including potatoes)	22 053	28	23 099	27
Deciduous and other fruit	*19 732*	*25*	*21 865*	*26*
Citrus fruit	19 329	24	20 686	24
Viticulture	5 827	7	5 020	6
Subtropical fruit	3 987	5	4 791	6
Other fruit	7890	10	8685	10
TOTAL	**79 184**	**100**	**79 184**	**100**

Source: Crops and markets, DAFF (2018b)

Table 2.1 above illustrates the gross income from major horticulture products in 2017 and 2018. In 2018, the income from horticultural products c the second most significant contributor at R21 865 million (DAFF, 2018b), this illustrates the importance and contribution of the industry.

The following section focuses on production, subsequent sections focus on market orientation, employment, the deciduous fruit industry value chain, and smallholder farmers within the deciduous fruit industry.

2.3 PRODUCTION OF DECIDUOUS FRUIT IN SOUTH AFRICA

Figure 2.1 shows that deciduous fruit is mainly produced in the Western Cape which contributes 72% of the total area planted to deciduous fruit in South Africa. The Northern Cape has the second largest area planted, representing 16% of the total area, followed by the Eastern Cape (8%) (Hortgro, 2018). Smaller pockets of production areas are found in other parts of the country but mainly in the Free State, Mpumalanga, Limpopo and Gauteng.

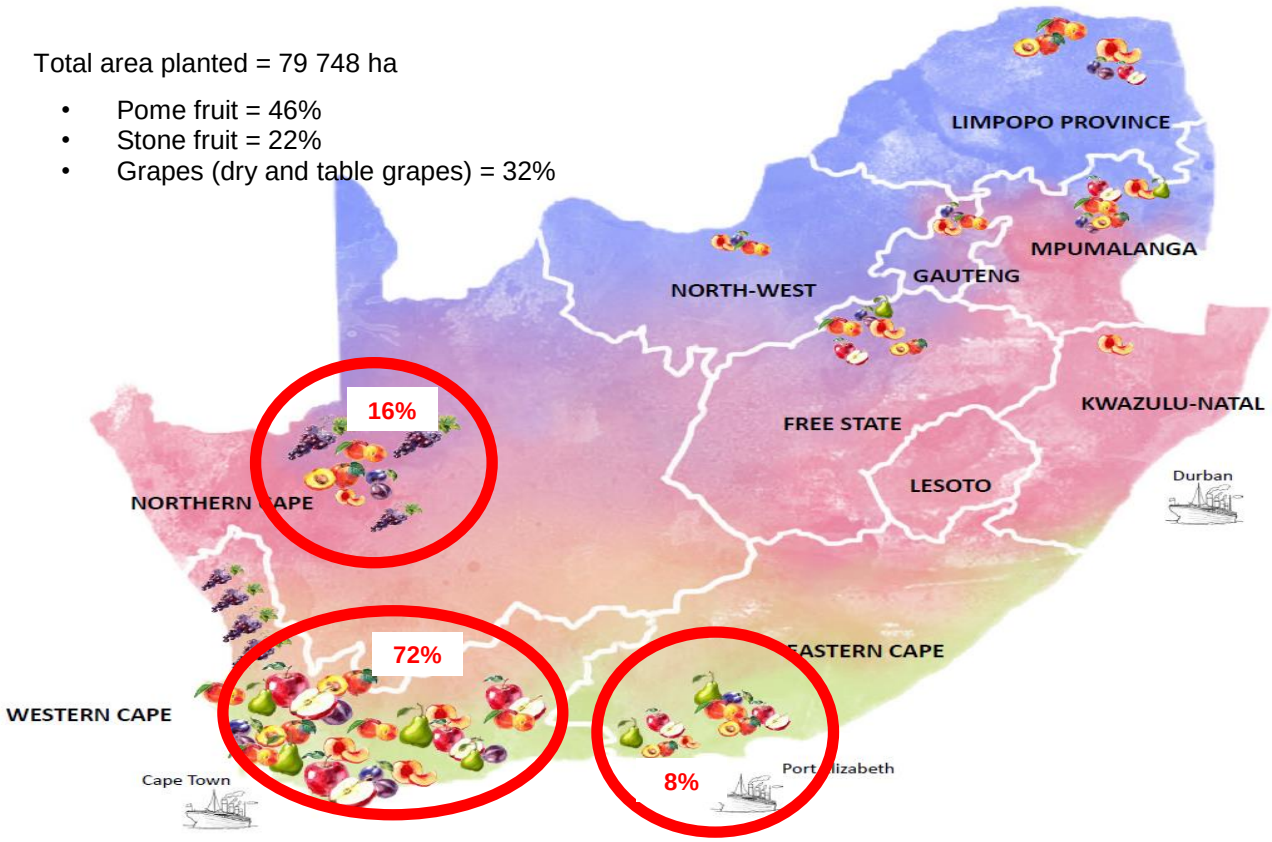

Figure 2.1: Map of the deciduous fruit production areas in South Africa

Source: Hortgro (2018)

In terms of the area planted, deciduous fruit is the largest sub-sector of the South African fruit industry. Table 2.2 shows the distribution of the deciduous fruit industry based on area planted. As depicted in Table 2.2, the total area planted with deciduous fruit in South Africa is approximately 79 748 hectares (Hortgro, 2018). The production of grapes (dried and table grapes) represents 34% of total area planted to deciduous fruit in South Africa, about (34%) followed by apples (29%), pears (15%), peaches (9%), plums (6%), apricots (4%) and nectarines (3%) (Hortgro, 2018). Cherries is still a niche product and takes a small percentage of the total area planted.

Table 2.2: Total area planted for deciduous fruit in 2018

Fruit	Hectares	Percentage
Grapes (dry and table grapes)	25 331	31,8
Apples	24 212	30,4
Pears	12 279	15,4
Peaches	7 338	9,2
Plums	5 093	6,4
Prunes	264	0,3
Apricots	2 838	3.6
Nectarines	2 131	2,7
Cherries	262	0,3
TOTAL	**79 748**	**100**

Source: Hortgro tree census (2018)

The following sub-sections will give a background on South Africa deciduous fruit industry sub-sectors.

2.3.1 Pome fruit production

With regard to pome fruit production, South Africa is ranked the second largest producer of pears and the largest producer of apples in the Southern Hemisphere (GAIN, 2018). The South African pome fruit industry is significant in pome fruit production worldwide. South Africa produces approximately 1.3 million tons of apples and pears per annum with a total value of R8 billion. Figure 2.2 provides the apple and pear industry perspective. The value of export for both apples and pears amount to R8.06 billion per annum.

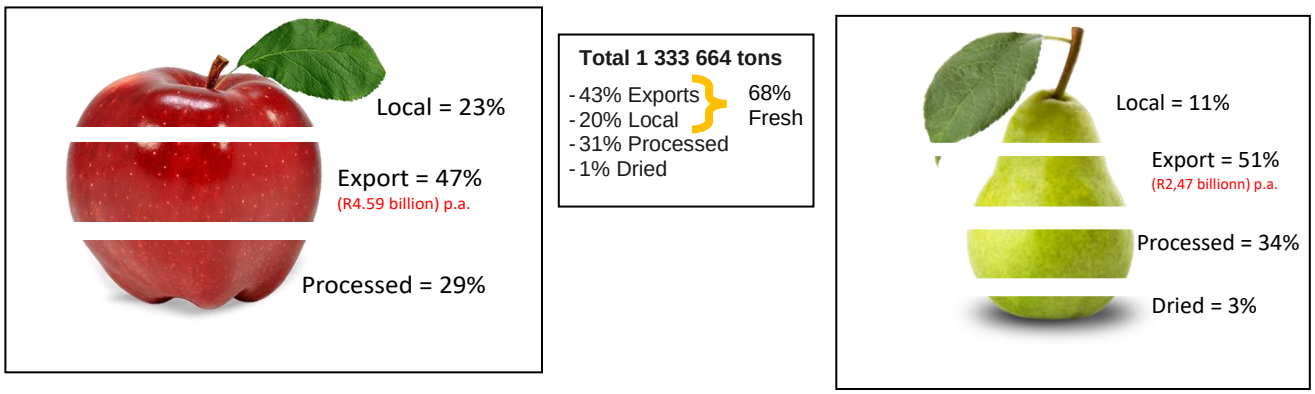

Figure 2.2: Apple and pear industry perspective

Source: Hortgro (2018)

Pears are also export-oriented with exports contributing approximately 49% of production. The domestic fresh pear market and processing accounts for 11% and 34% of total production respectively (Bureau for Food and Agricultural Policy, 2018: Hortgro, 2018). The domestic fresh

and processing market segments of the pome fruit subsector remain important in accommodating fruit that cannot meet export standards due to unfavourable weather conditions.

In 2017, the South African pome fruit market supplied approximately 16.9% and 33.3% of total apple and pear production in the southern hemisphere respectively (BFAP, 2018). The pome fruit industry continues to grow, and according to the 2015 tree census, approximately 36 322 hectares of pome fruit have been established in South Africa with, 17% of the plantings situated in the Eastern Cape and 81% situated in the Western Cape. According to BFAP (2018), apple production is projected to increase by 5.3% from 940 thousand tonnes in 2007 to 990 thousand tonnes in 2027 (see Figure 2.3).

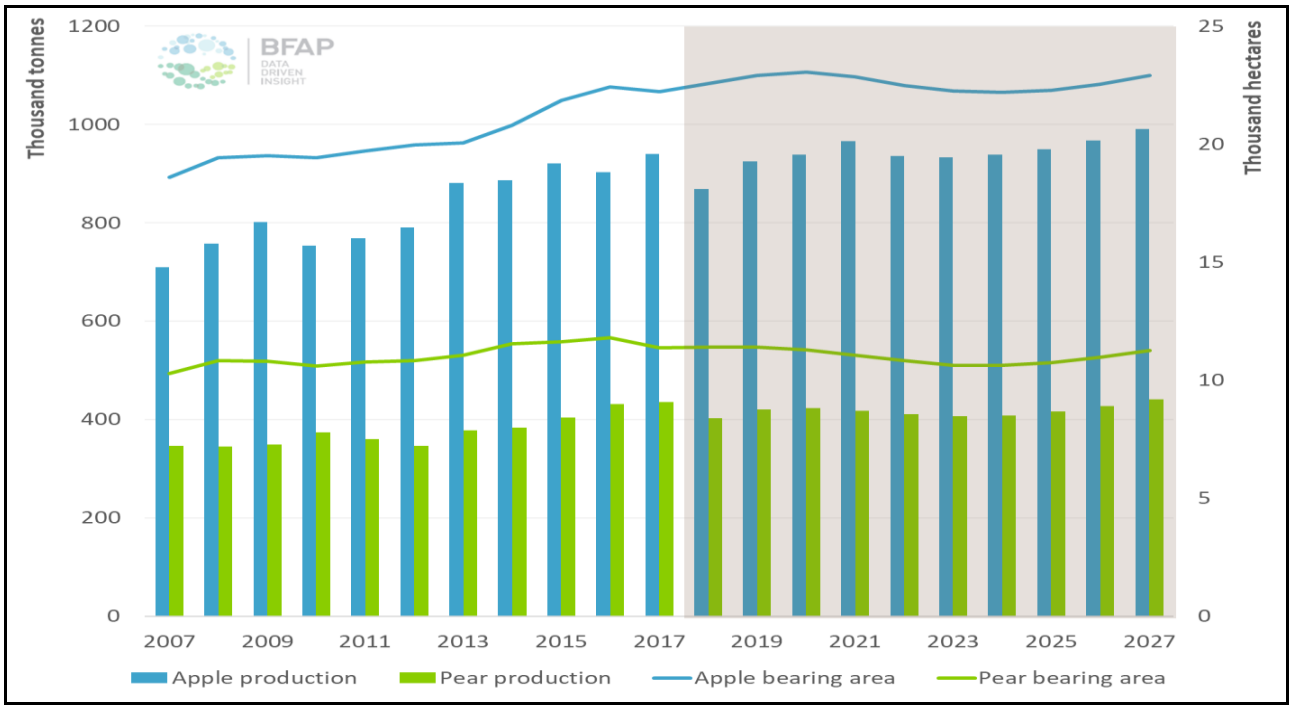

Figure 2.3: Production and price outlook for the South African pome fruit industry: 2007–2027

Source: BFAP (2018)

2.3.2 Stone fruit production

South Africa is the largest producer of stone fruits in the world (NAMC, 2018). Stone fruits include peaches, apricots, plums and nectarines. The harvesting season of stone fruit runs from the beginning of November until mid-March. Table 2.3 shows the South African stone fruit production in cartons. The production of stone fruit has showed a slight growth from previous seasons, for example, the total production in the 2012/13 season was 100 700 655 million cartons and rose to 110 660 396 million cartons in the 2015/2016 season.

Table 2.3: South African stone fruit production in cartons (millions)

Production	2012/13	2013/14	2014/15	2015/16
Peaches and Nectarines (1 Carton = 2.5 kg)	73 470 243	62 056 649	83 546 240	86 888 090
Plums (1 Carton = 5.25 kg)	14 425 407	13 301 523	14 292 920	13 292 415
Apricots (1 Carton = 4.75 kg)	12 805 005	10 268 009	12 185 920	10 479 891
Total	**100 700 655**	**85 626 181**	**110 025 080**	**110 660 396**

Source: Hortgro (2016)

Globally, South Africa is ranked 20th in terms of production (NAMC, 2018). In the southern hemisphere, South Africa contributes 66 75 tonnes of plums (36.87%), 17 105 tons of peaches and nectarines (14.17%) and 4 126 tons of apricots (62.28%). “Peaches are one of the most important stone fruits in South Africa because of their foreign earnings and job creation across the value chain” (NAMC, 2018, page 3).

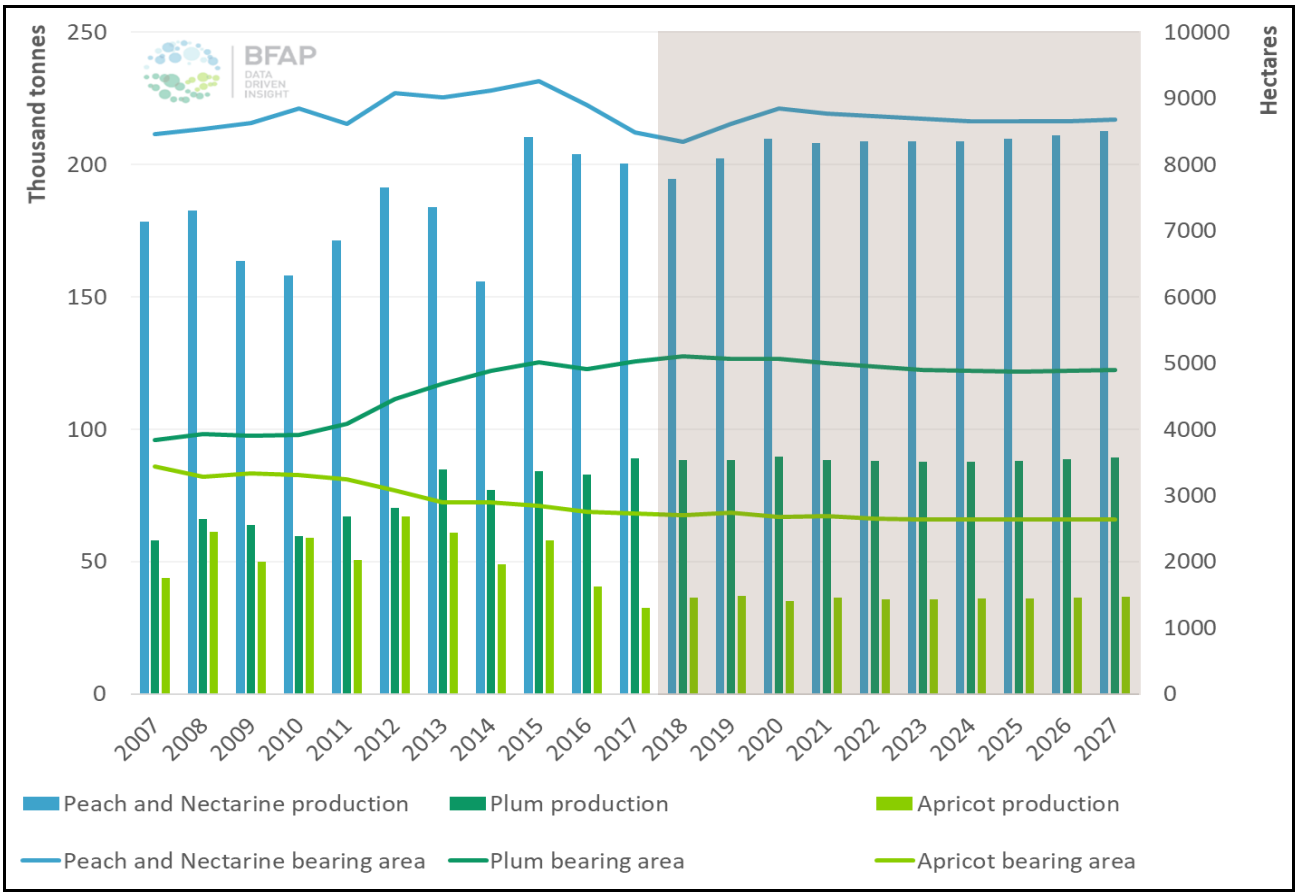

Figure 2.4: Production outlook for the South African stone fruit industry: 2007–2027

Source: BFAP (2018)

Although the industry has been affected by severe drought, especially in the Western Cape, a slower recovery of about 2.2% is expected for the next 10 years (BFAP, 2018). According to BPAF (2018), this will be sufficient to support a production expansion of just under 213 thousand tonnes and is expected by 2027 if the industry gets the necessary support (see Figure 2.4).

2.3.3 Table grape production

More than 80% of the South African table grape production occurs in the Western Cape Province. Small production also occurs in the Northern Cape, Limpopo, Eastern Cape, Limpopo, Free State and Mpumalanga. Table grape production is mainly dominated by five production areas: the Hex-River valley which is the country's main table grape production area, Berg River Valley, Lower Orange River, Northern Province and Olifants River. The South African table grape export production is mainly situated in mild Mediterranean and arid subtropical climates (DAFF, 2013).

According to the South African Table Grape Industry's first crop estimate for the 2018/2019 season, volumes of table grape production are estimated to be between 63.2 million and 70.1 million cartons (4.5 kg equivalent) (SATI, 2018). This is attributed to the good winter rains which broke the worst drought ever experienced in the Western Cape. It is envisaged that this positive outlook, which is also attributed to new plantings and new cultivars, will bring the South African table grape industry back on its organic growth trajectory. Table 2.4 shows South Africa table grape production for five seasons and is measured in million cartons. Production values for 2017/18 are just estimates. Production continues to increase from production values of 53.9 million cartons for the 2012/13 season to 67.6 million cartons for the 2016/17 season.

Table 2.4: South African table grape production in 4.5kg carton equivalents (millions)

Region	2012/13	2013/14	2014/15	2015/16	2016/17	2017/2018
Hex River	18.3	16.8	20.3	18.8	22.1	17.2 - 18.5
Berg River	12.7	11.4	13.1	12.6	15.4	11.2 - 12.5
Orange River	16.0	15.1	17.1	18.6	20.5	21.5 - 22.5
Northern Province	4.2	4.1	4.5	4.7	5.5	6.0 - 6.5
Olifants River	2.7	3.1	3.8	3.2	4.0	3.0 - 3.0
Total	**53.9**	**50.5**	**59.4**	**58.0**	**67.6**	**58.9 - 63.0**

Source: SATI (2018)

Globally, South Africa is the most reliable and oldest supplier of grapes for the northern hemisphere (SATI, 2018). In the northern hemisphere countries, table grapes are available during winter and spring seasons (NAMC, 2018). The global production of table grapes continues to grow and the highest production was during the 2016/17 season at a volume of 22.7 million tons (NAMC, 2018). South African table grape production remains significant compared to the world's production and is ranked as the tenth producer in the world with an estimated share of 4.1% in 2017/18 (NAMC, 2018). Today, in the southern hemisphere South Africa is the third largest producer of table grapes after Chile and Peru. Table grape export volumes are projected to increase by 3% for the next decade and the production area is projected to increase by 9.1% by 2027 as depicted in Figure 2.5 (BFAP, 2018).

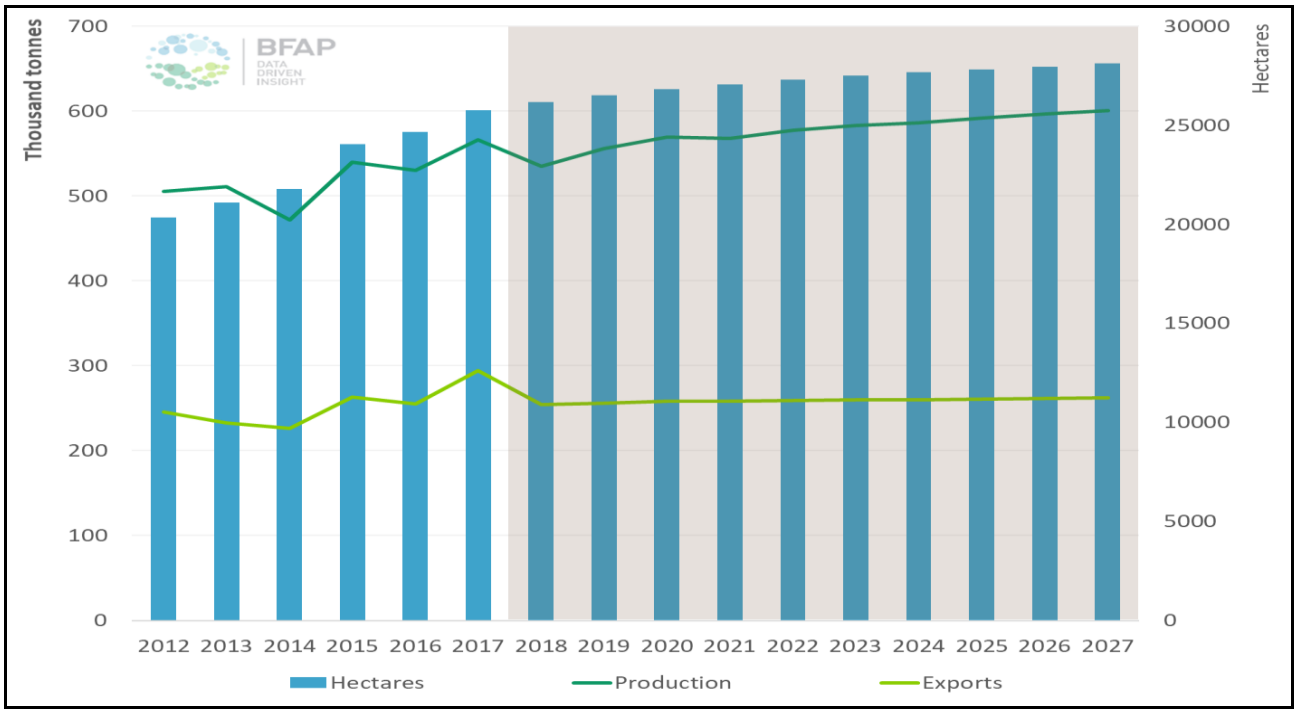

Figure 2.5: Production outlook for the South African table grape industry: 2012–2027

Source: BFAP (2018)

Although the deciduous fruit industry is important and produces huge volumes of fruit annually, production is capital intensive and needs huge capital outlay. The following section therefore looks at the production costs of stone and pome fruit production.

2.3.4 Production costs

The production of deciduous fruit is a labour, capital and technology intensive activity, requiring producers to have access to the necessary resources in order to produce products of good quality that meet the requirements of high value markets. Production needs a huge capital outlay to cover costs of items such as plant material for new orchards or replacement of orchards with climatically better suited cultivars, production costs (especially for years without income),and installing shade netting and irrigation systems. As depicted in Table 2.5, pome fruit production requires, on average, capital of about R363 880,29 per hectare for the establishment of the orchards (Hortgro, 2016). The biggest cost driver for establishment costs is the cost of plant material, and there are operational expenses during the gestation period of five to seven years. Before 1892, plant material used to take a small portion of production costs due to the fact that seeds were used for propagation. During that period, the main cost driver was land preparation and irrigation. In 2016, the cost of plant material per hectare during establishment of apricots and peaches was R175 620,50 and R182 093,26 respectively (Hortgro, 2016).

Table 2.5: Crop budgets: pome fruit (2016)

	Apples			Pears		
	Establish	**Non-bearing**	**Bearing**	**Establish**	**Non-bearing**	**Bearing**
Pre-harvest costs	R290 032,95	R20 166,72	R74 627,94	R270 498,09	R19 411,69	R73 665,07
Harvest & Post	R0,00	R0,00	R249 967,50	R0,00	R0,00	R198 348,56
Overhead costs	R73 847,34	R60 016,69	R75 618,66	R71 869,43	R59 001,25	R71 947,10
Total cost	**R363 880,29**	**R80 183,41**	**R400 214,10**	**R342 367,52**	**R78 412,94**	**R343 960,73**

Source: Hortgro (2016)

During a non-bearing period, the main cost driver is fertilizer cost. For example in 2016, the cost of fertilizer per hectare for apricots, peaches and plums was R6 784, R8 094 and R2 119 respectively. Overhead costs, which include permanent labour, water, depreciation on orchards and interest on loans, take a huge portion of production costs both during establishment and non-bearing stage. Using the example of apricots and peaches, the overhead costs during establishment in 2016 were R62 263,08 and 62 918,44 respectively as shown in Table 2.6. These costs become very onerous for farmers, especially the new entrants and the smallholder farmers. This means that financing is required in order to enter into the deciduous fruit industry.

Table 2.6: Crop budgets: stone fruit (2016)

	Apricots			Nectarines/Peaches		
	Establishment	**Non-bearing**	**Bearing**	**Establishment**	**Non-bearing**	**Bearing**
Pre-harvest costs	R175 620,50	R16 856,26	R64 596,83	R182 093,26	R16 431,79	R73 015,12
Harvest & Post	R0,00	R0,00	R79 023,10	R0,00	R0,00	R145 831,24
Overhead costs	R62 263,08	R54 126,41	R60 623,05	R62 918,44	R54 428,29	R64 802,04
Total cost	**R237 883,57**	**R70 982,67**	**R204 242,98**	**R245 011,71**	**R70 860,08**	**R283 648,40**

Source: Hortgro (2016)

The costs mentioned above exclude infrastructure costs such as fencing, tractors and vehicles, ploughs etc. They also exclude what is termed cost of being part of the value chain such as administrative and statutory costs which typically include company registrations and accounting fees and costs such as certification costs for GlobalGAP, agency fees, inspection and monitoring fees. These costs are expanded in Chapter 3 which we grouped to direct financial costs, compliance and regulatory costs and form part of the cost to participate in the value chain. There are also export costs associated with the sale of deciduous fruit which are reflected in Table 2.7.

As mentioned above, the South African deciduous fruit industry is export-oriented and supplies the local market with the surplus fruit. The country only imports small quantities of deciduous fruits when supply is limited to fulfil a niche market or to satisfy domestic demand (GAIN, 2018). The following sub-section therefore discusses further the export orientation of the deciduous fruit industry in South Africa.

Table 2.7: Deciduous fruit export cost perspectives

	APPLES		PEARS		PLUMS		PEACHES		NECTARINES		APPRICOTS	
	Rand	%	Rand	%	Rand	%	Rand	%	Rand	%	Rand	%
Sales Price	**230,03**	**100,0%**	**236,87**	**100,0%**	**167,93**	**100,0%**	**106,08**	**100,0%**	**119,27**	**100,0%**	**206,14**	**100,0%**
Receiver Cost	35,94	15,6%	37,01	15,6%	26,24	15,6%	16,57	15,6%	18,64	15,6%	32,21	15,6%
Receiver Commission	14,38	6,3%	14,80	6,3%	10,50	6,3%	6,63	6,3%	7,45	6,3%	12,88	6,3%
Delivery Price Receiver	179,71	78,1%	185,05	78,1%	131,19	78,1%	82,87	78,1%	93,18	78,1%	161,05	78,1%
Delivery Cost	13,25	5,8%	13,25	5,6%	7,70	4,6%	5,41	5,1%	5,80	4,9%	6,60	3,2%
CIF	**166,46**	**72,4%**	**171,80**	**72,5%**	**123,50**	**73,5%**	**77,47**	**73,0%**	**87,38**	**73,3%**	**154,45**	**74,9%**
Shipping Cost	30,74	13,4%	30,74	13,0%	17,49	10,4%	9,15	8,6%	9,15	7,7%	15,82	7,7%
FOB	**135,72**	**59,0%**	**141,06**	**59,6%**	**107,69**	**64,1%**	**68,31**	**64,4%**	**78,23**	**65,6%**	**138,62**	**67,2%**
						0,0%		0,0%				
Exporter Commission in Rand	13,55	5,9%	13,95	5,9%	7,94	4,7%	5,60	5,3%	6,02	5,0%	9,56	4,6%
Local Cost	6,17	2,7%	6,17	2,6%	2,61	1,6%	4,31	4,1%	4,31	3,6%	3,21	1,6%
DIP	**116,00**	**50,4%**	**120,94**	**51,1%**	**97,14**	**57,8%**	**58,40**	**55,1%**	**67,90**	**56,9%**	**125,85**	**61,1%**
PPECB Inspection levy	0,61	0,3%	0,61	0,3%	0,57	0,3%	0,57	0,5%	0,57	0,5%	0,57	0,3%
HORTGRO Levies	0,88	0,4%	0,88	0,4%	1,28	0,8%	0,77	0,7%	0,77	0,6%	1,23	0,6%
HORTGRO Levies as % of DIP Value (First point of Sale)	**1%**		**1%**		**1%**		**1%**		**1%**		**1%**	
Production & Packaging costs	96,11	42%	96,11	**40,6%**	60,85	**36%**	35,11	**33%**	35,11	**29%**	74,46	**36%**
NFI	**19,89**	**8,6%**	**24,83**	**10,5%**	**36,29**	**21,6%**	**23,29**	**22,0%**	**32,79**	**27,5%**	**51,40**	**24,9%**
Carton Size	**12,5**		**12,5**		**5,25**		**2,5**		**2,5**		**4,75**	
Cartons/ton	**80**		**80**		**190**		**400**		**400**		**211**	

Note: Rand values relates to price per carton

Source: Hortgro (2016)

2.4 MARKET ORIENTATION AND DESTINATIONS FOR SOUTH AFRICAN DECIDUOUS FRUIT

As mentioned above, the deciduous fruit industry is manly export oriented. On the pome fruit side, South Africa apples have the largest share of exports to the Far East and Asia. These markets have grown tremendously since 2007 due to demand, accessibility and profitability, and take 31% of the apple imports from South Africa. Other significant markets for apples include the UK, EU and Russia with 18% and 10% share of exports respectively (du Preez, 2018). Africa is the second largest export markets for apples, contribution 30% of the lion's share of export volumes (see Figure 2.6 below). In Africa, Nigeria, Senegal, Ghana, Zimbabwe and Benin are the major markets for South African apples, while Zimbabwe and Benin and are the major markets for South African apples within the SADC (DAFF, 2016b). The UK, with 18% of the export market for apples, remains a key market for South Africa (du Preez, 2018).

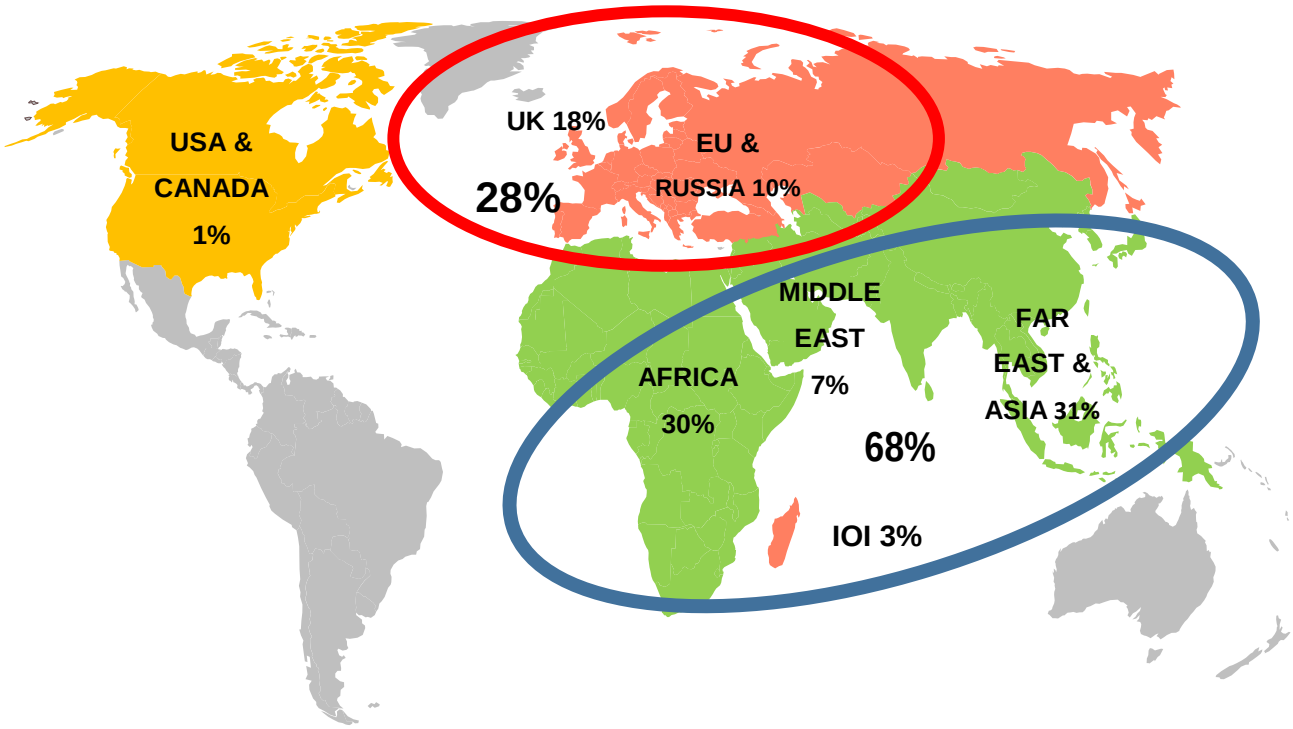

Figure 2.6: Apple fruit export destinations

Source: Hortgro (2018)

On the stone fruit market, South African contributes approximately 9.37% of the total global plum market followed by apricots (1.24%), and nectarines and peaches at 0.77% (ITC, 2018). According to BFAP (2018), the plum market contributes the largest share of stone fruit export volumes with a projection of 62 thousand tons by 2027 (see Figure 2.7 below). Compared with the southern hemisphere, due to seasonality of production, South Africa plays a pioneering role and contributes 36.87% of plums, 14.17% of peaches and 62.38% of apricots (BFAP, 2018). Globally, South African stone fruit exports come behind Chile which is South Africa's most prominent competitor.

Like stone fruit and pome fruit, the table grape industry is export oriented and its share of the total export market has been approximately 20% between 2012 and 2017 (BFAP, 2018). South African table grape exports account for more than 6% of the global exports with more than 9 million 4.5kg equivalent cartons of table grapes per season. “South Africa is the northern hemisphere’s oldest and most reliable supplier of table grapes” (SATI, 2018).

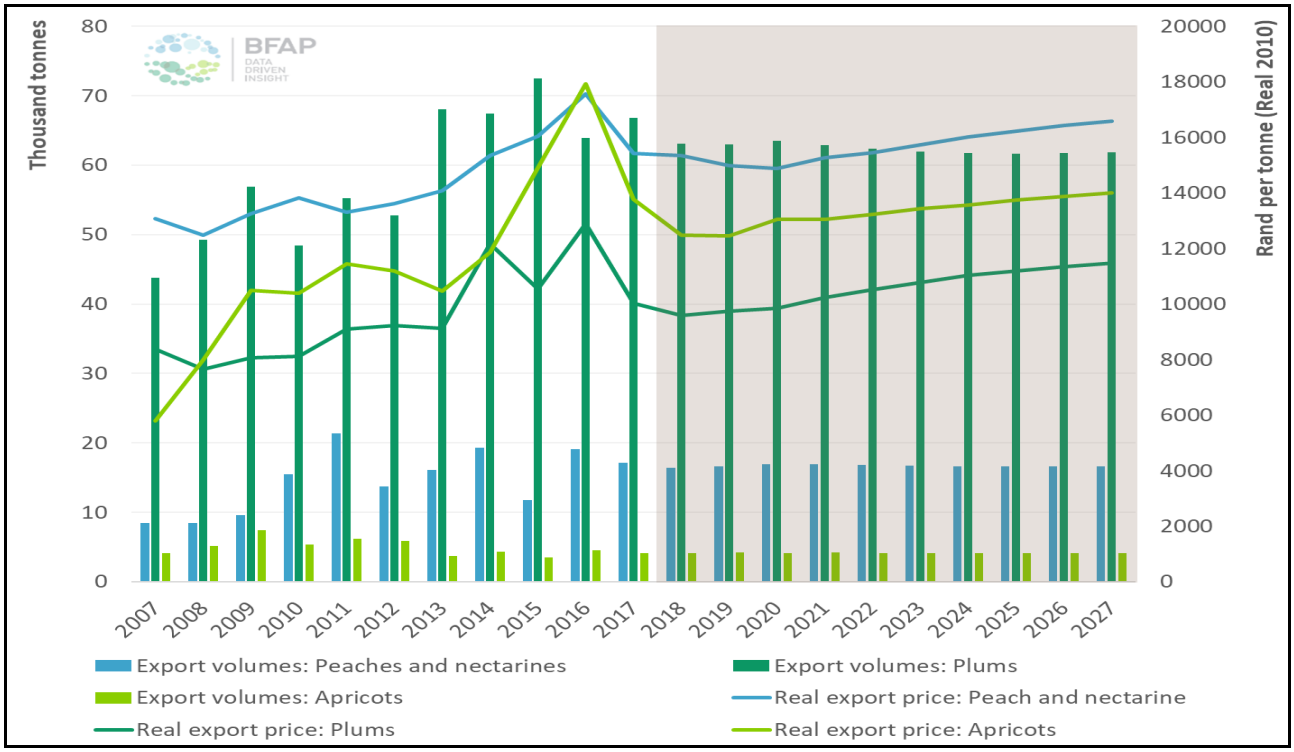

Figure 2.7: Export volume and price outlook for the South African stone fruit industry: 2007–2027

Source: BFAP (2018)

Figure 2.8 shows that the most prominent destination for the South African table grape exports is Europe (49%), followed by the United Kingdom (23%), Far East (7%), Middle East (6%) and South-East Asia (5%) (NAMC, 2018).

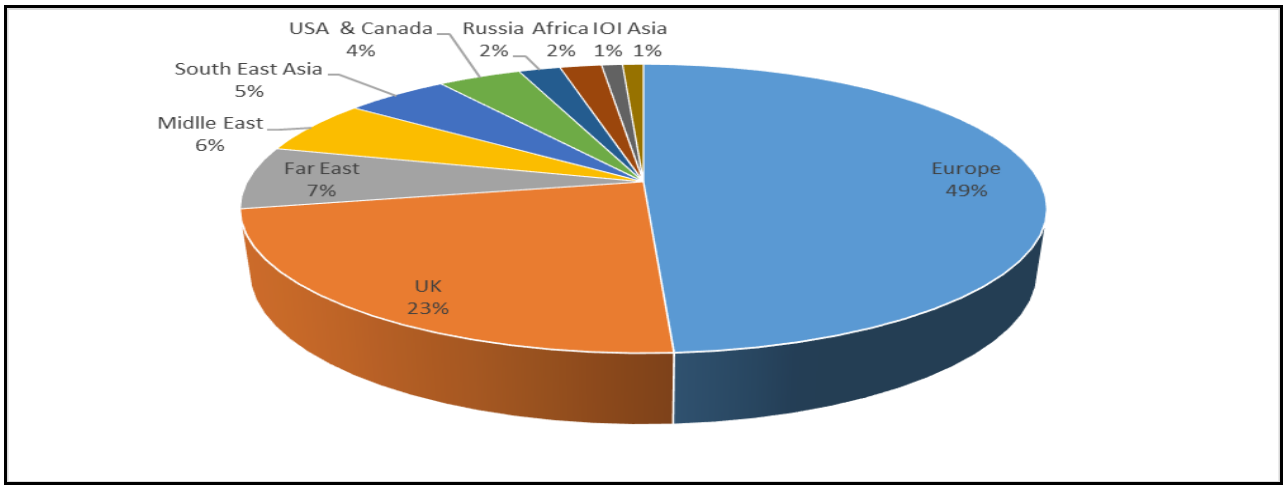

Figure 2.8: Table grape export destinations

Source: Hortgro (2018)

The deciduous fruit industry is a significant contributor to employment and this is further discussed in the following sub-section.

2.5 EMPLOYMENT CONTRIBUTION OF THE DECIDUOUS FRUIT INDUSTRY

The South African deciduous fruit industry contributes immensely to job creation within the South African agriculture labour force (Hortgro, 2018). The deciduous fruit industry makes a vital contribution to direct employment in both production and processing. The industry also provides indirect employment for many support industries in the areas where deciduous fruit is produced.

Table 2.8: On-farm employment within the deciduous fruit areas of South Africa in 2018

Fruit	Labourers*	Dependents	Ha	L/ha
Apples	27 359	109 436	24 212	1,13
Grapes	45 595	182 381	25 331	1,80
Pears	13 139	52 554	12 279	1,07
Peaches	7 926	31 702	7 338	1,08
Plums	6 468	25 871	5 093	1,27
Apricots	3 377	13 508	2 838	1,19
Nectarines	2 429	9 717	2 131	1,14
Cherries	499	1 994	262	1,90
TOTAL	**106 791**	**427 164**	**79 484**	**1,32**

*Permanent equivalent (casual labour converted to permanent equivalents)

Source: Hortgro (2018)

As shown in Table 2.8 above, in 2016, direct employment within the deciduous fruit industry was estimated at 106 791 people with 427 164 dependents. Permanent workers are employed mainly for specialist tasks such as pruning of trees and thinning during blooming periods. They also perform tasks such as “harvesting, supervision, operational duties in the pack house, irrigation management, scouting for insects and diseases on seasonal basis, tractor or forklift driving and

grafting" (DAFF, 2016a). Seasonal workers are employed on a contractual basis for a fixed period mainly for harvesting or fruit packing. Table grape production takes the lion's share of the labour force and employed 45 595 permanent labourers in 2016, followed by local apple production which employed around 27 359 permanent labourers (see Table 2.8 above).

Deciduous fruit production has a long and complex value chain with many linkages and actors. This value chain is discussed in the next section which starts by providing the context of the value chain and its evolution.

2.6 VALUE CHAIN CONTEXT

2.6.1 Defining the value chain

Value chain describes a range of actors and value-adding activities involved in bringing a product from production to the final consumer (Kaplinsky & Morris, 2001; Miller & da Silva, 2007). A typical value chain contains input suppliers, producers, processors, suppliers and retailers as well as consumers. The value chain concept put emphasis on the value addition in each stage, indicating that production is one of many value-adding stages of the chain (UNIDO, 2009). This concept is often used interchangeably with "supply chain". However, according to Webber and Labaste (2010), the value chain relates to value creation through innovation in production, processing and eventually marketing while the supply chain concept relates to the logistical and procedural activities involved in the transmission of a commodity from production to the final product and ultimately to the consumer. The value chain approach is useful to identify linkages of various players, small or big, so that even the small players can also benefit (Ang, 2011). The value chain looks from a systems perspective and affords a series of tools, process and analytical tools (Kaplinsky and Morris, 2001). The value chain concept has a rich history and has developed over decades with several scholars having developed various techniques and approaches to analyse the value chain. The following sub-section describes the evolution of the value chain approach.

2.6.2 The evolution of the value chain approach

In the 1960s, the French National Institute for Agriculture Research (INRA) and the French Agricultural Research Centre for International Development (CIRAD) developed an important stream of literature, which led to the development of the first analytical method: *filière*. Initially, this approach was used in French agriculture to investigate contract farming and vertical integration. The use of this approach was expanded to the West African countries which were colonised by the French (Mabuza, 2013). Early studies in this approach focused mainly on the description of existing agricultural commodity chains through the quantitative analysis of inputs and outputs, prices and value added (Raikes *et al*., 2000). Work under this approach increased later to complement technical quantitative relationships with a policy dimension, through evaluating the role of public institutions in the development of domestic commodity chains (Raikes *et al*., 2000).

The *filière* gradually became popular outside France, however, many scholars avoided the approach and claimed that its applicability was only limited to domestic commodity chains (Kaplinsky & Morris, 2001; Raikes *et al*., 2000). UNIDO (2009) argued that *filière* studies overlooked international trade by only looking primarily at local production systems and consumption. Kaplinsky and Morris (2001) also argued that *filière* did not provide internal dynamics in community or service flows as well as changes in the status of value chain, but merely described production relationships at a certain point in time.

The value chain concept has evolved over the years and was first advocated by Porter (1985) to portray how customer value accumulates along a chain of activities in an organisation's production process that leads to an end product or service. Porter (1985) held that the value chain is an internal process which an organisation follows to design, produce, market and deliver its product to the final consumer. In his analysis of the value chain, Porter (1985) described two major categories of organisations' activities, which are primary activity and support activity. He identified primary activities as activities that are directly linked to transformation of inputs into outputs, such as inbound logistics, operations, outbound logistics, marketing and sales, and services. Support activities are activities that have an indirect effect on the final value of the product and include activities such as procurement, technology development, firm's infrastructure and human resource management.

In the early 1990s, Shank and Govindarajan (1992) give a broader definition of value chain than Porter. These authors argued that the value chain for any firm is the value creating activity all the way from basic raw material sources, from component suppliers through to the ultimate end-use product. Shank *et al*. (1992) claimed that the industry value chain starts with the value chain creating a process of supplies and continues with value-creating processes of buyers or end-use consumers. Gereffi (1994) introduced another concept known as a Global Commodity Chain (GCC) into the literature. Various GCC researchers used the value chain framework to scrutinise methods in which firms and countries are globally integrated. This analysis involved the identification of actors involved in production and distribution of a certain product or service and mapping the relationships that occur among them. Gereffi *et al*. (2001) revised the GCC terminology to Global Value Chain (GVC), due to increasing fragmentation of production processes at the international level. GVC put emphasis on different ways of coordinating activities along the chain. This approach is domiciled around four pillars: input-output structure, territorial structure, institutional framework and governance structure. Within these pillars, governance structure received more emphasis due to the notion that it is where the barriers to entry to the value chain lie.

The study by Gereffi *et al.* (2001) incorporated an unequivocal international dimension to the analysis of value chains and put emphasis on the power relations and governance along the value chain. An important concept within this literature is one of lead firms (chain drivers), defined as

firms controlling the access to resources such as brand names, product design, new technology etc. Gereffi *et al.* (2001) argued that lead firms shape the overall structure of the value chain and determine performance through controlling the location of production plants, designing the products, the production technology, and the time and pace of delivery. However, value chains exhibit a variety of governance such as “buyer-driven” value chains and “producer-driven” value chains (Gereffi *et al*., 2001). Buyer-driven value chains contain merchandisers (large retailers) that play a key role in controlling the whole system. “Producer-driven” value chains are value chains where large producers set the rules for the functioning of the system. Buyers play a crucial role of setting decentralised production networks in various countries involved in the export of a product (Gereffi and Memedovic, 2003). In the agricultural context, buyer-driven value chains are commonly found in the high-value food industries where there is a large domination of supermarket chain stores which serve urban customers (Weatherspoon and Reardon, 2003). According to Bienabe *et al.* (2004), in these buyer-driven value chains, the supermarket chain store determines conditions such as quality, volume, packaging requirements, consistency and safety standards. In the context of the agricultural sector, value chain analysis has been important to understand markets, particularly to understand the fundamental factors that deter the participation of smallholder farmers in modern value chains (IFAD, 2010).

The following sub-section section gives a description of the deciduous fruit value chain.

2.6.3 Deciduous fruit industry value chain in South Africa

Deciduous fruit production in South Africa and its value chain is concentrated in the export market and the products make a considerable contribution to agricultural exports nationally. The deciduous fruit value chain is a complex linkage of various production and operational role-players (see Figure 2.9). The value chain consists of suppliers of farming inputs, farmers (producers), fresh produce markets, retailers, processors, cold storage and pack house operators, transporters, exporters, quality control and certification agents, as well as terminal and port operators. The following chain actors play a key in the value chain.

Input suppliers: Fruit production is a considerable consumer of sophisticated inputs and specialised agricultural chemicals. Input suppliers are critical in the production process and ensure availability and supply of all inputs, such as farm equipment, pesticides and insecticides, that are needed by farmers for successful production. Availability of inputs at affordable and reasonable prices is critical to ensure competitiveness of the deciduous fruit industry in South Africa.

Producers: Key players in this value chain are producers themselves who have to ensure production of high quality product with “Good Agricultural Practice” (GAP) protocols. Producers have to also ensure a consistent and reliable supply of products and fruit varieties that are demanded by markets at reasonable prices.

Markets: From production, the fruit products are absorbed by the Fresh Produce Markets (FPMs) which are the main market player in the South Africa deciduous fruit value chain. Although FPMs dominate the wholesale market, there are other wholesalers such as wholesaling intermediaries, contract buyers and supermarkets. Farmers also sell directly to retailers and consumers. The selling prices to FPMs is determined through a bargaining process facilitated by market agents (MAs) who ensure that the products are sold quickly due to perishability, but also ensure good prices in order to get their commission. Deciduous fruit is also sold through retailers in both the formal and informal sectors. Formal retailers include supermarkets, formally registered retail chains and neighbourhood stores (DAFF, 2016a). The informal retailers include hawkers and local tuck shops. In these types of market, prices are usually predetermined.

Processors: Processors are also key actors in the value chain. Processing of deciduous fruit includes canning, drying and juice manufacturing (DAFF, 2016a).

Cold storage operators and transporters: Other key players in the value chain are cold storage operators and transporters. The role of cold storage operators is to receive, handle and cool the fruit to the pre-required standard temperatures and to ensure that the correct fruit is loaded into a truck or container according to the exporter's specifications through the approval by Perishable Produce Export Control Board (PPECB). The PPECB is responsible for the control of perishable products intended for export from the Republic of South Africa (DAFF, 2016a) in terms of the PPECB Act (Act 9 of 1983), while the National Department of Agriculture, Forestry and Fisheries (DAFF) is responsible for issuing the phytosanitary certificates. Transporters of fruit are an important link in the chain. They facilitate the physical movement of products between the producer, cold store and terminal operators and maintain the cold chain during transit. Exporters are responsible for marketing and selling the fruit products at good market prices. They are also responsible for managing the cold chain and handling the fruit in a satisfactory manner, and they are ultimately accountable for the quality of fruit until it reaches the destined markets.

Terminal and port operators: Another link in the chain is the terminal and port operators who have to liaise with all relevant parties in the value chain such as transporters, producer associations, producers and cold stores about any issue that could potentially impact on the flow of fresh produce into and out of the harbour.

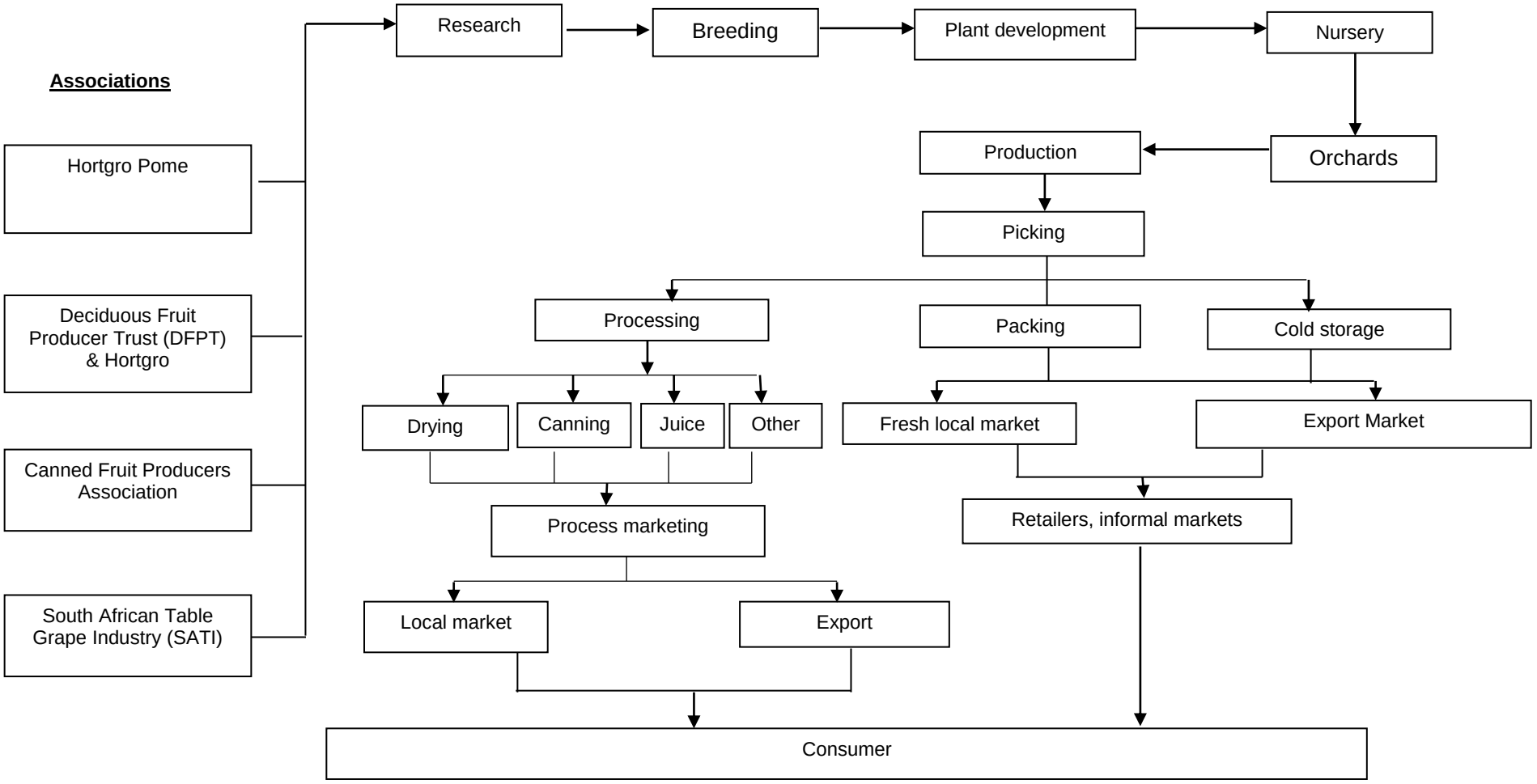

Figure 2.9: Schematic representation of the South African deciduous fruit value chain

Source: Author's illustration

Support institutions: There are other support institutions that play a key role in the value chain. These institutions include the South African Table Grapes Producers Association (SATGI) which represents and supports the interests of table grape producers, the South African Apple and Pear Producers' Association (SAAPPA) which supports apple and pear producers and other organisations such as HORTGRO which provides services (production, markets, and transformation), and HORTGRO Science (research and technology within the deciduous fruit industry). SAPO (South African Plant Improvement Organisation) Trust provides fruit plant material while PLANT SA provides management and administrative services in support of plant improvement and plant certification in the interests of horticulture in South Africa (DAFF, 2016a). The Deciduous Fruit Development Chamber (DFDC) assists the smallholder farmers with capacity building and advocacy. The Cultivar Development Company (CULDEVCO) is responsible for management of cultivar development, deciduous fruit varieties and stone fruit rootstock developed for South African growing conditions.

As mentioned earlier, the deciduous fruit value chain is sophisticated and very long. The long value chain contributes to a large portion of costs which are typically production, packaging, machinery and value chain costs. The large portion of costs reduces the net farm profit or the producer's share which ranges around 11% of the foreign sales price (Midgley, 2016). The long value chain also poses a huge financial risk for farmers as they need to ensure not only the quality of the fruit, but also that products reach the consumer in a satisfactory condition. This risk is solely handled by farmers and translates into a small margin on their net farm income. The long chain poses even more challenge for the new entrants into the chain. Integration of new producers, especially smallholder farmers, into the value chain is key but still a challenge and this is expanded in section 2.7. A partnership approach between multiple chain actors in the value chain with smallholder farmers becomes crucial for the benefit of the whole value chain. The following section gives insight into the transformation or absorption of the smallholder farmers into the deciduous fruit value chain.

2.7 SMALLHOLDER FARMERS AND TRANSFORMATION WITHIN THE DECIDUOUS FRUIT INDUSTRY

Within the industry, transformation is still a challenge and the intergration of smallholder farmers (new entrants) into the industry is very slow. A number of factors contribute to the slow integration of smallholder farmers into the deciduous fruit value chain. Smallholder farmers (black producers) in the industry have displayed poor financial performance and that is a cause for concern (Midgley, 2016; DAFF, 2016a). This poor financial performance is caused by a number of reasons, which include poorly structured business plans and lack of financial management controls (DAFF, 2016a). These farmers have limited knowledge of the overall export market. Another challenge is

the capital outlay needed to establish and maintain orchards. New entrants must contend with limited physical and financial resources. Many farms were acquired through the Land Redistribution for Agricultural Development (LRAD) have a poor or degraded resource base. Deciduous fruit production requires, on average, a capital of about R363 880,29 per hectare for the establishment of the orchards (see Table 2.5 above) (Hortgro, 2016). And there is a need for operational funds during the gestation period of five to seven years. Land grant funding is often utilised to purchase land without considering the need for operational expenses.

The export market in the industry has had poor financial returns in the recent past coupled with cost inflation and interest payments, and this heavily affected the new entrants. The poor financial performance is also attributed to lack of human capacity such as technical, managerial and administrative skills (DAFF, 2016a). There is also a challenge of forging cooperation with fully established commercial farmers. As mentioned earlier, deciduous fruit is export oriented. For smallholder farmers to gain access to export market, they have to enter into either partnership contractual/mentorship arrangements with exporting companies or with well-established commercial farmers with the industry that have linkages with huge exporting companies.

To overcome empowerment and transformation issues, the Deciduous Fruit Development Chamber (DFDC) was established as a national support structure for smallholder farmers (DAFF, 2016a). The aim of DFDC is to assist smallholder farmers with capacity building and advocacy and to mobilise resources from various institutions such as government and the donor community. DFDC also aims to provide business guidance and technical assistance to smallholder fruit producers. HORTGRO Services formed a partnership with the Western Cape Department of Agriculture and act as an implementation agent for Comprehensive Agricultural Support Programme (CASP) grants. This enables HORTGRO for carry out their economic development agenda through matching of funds for the implementation of targeted transformation projects with the main focus on the tree project. The tree project aims to increase production or footprint for smallholder farmers within the deciduous fruit industry.

2.8 SUMMARY

The South African deciduous fruit industry remains an important industry in South Africa. It contributes immensely to the GDP of the country and remains a considerable source of employment for many households. The South African deciduous fruit industry mainly comprises stone fruit (peaches, apricots, plums and nectarines), pome fruit (apples and pears), and dried and table grapes. Deciduous fruit is mainly produced in the Western Cape, which represents 72% of the total area planted to deciduous fruit. The industry is export oriented with 44% of the fruit being exported. With its export orientation, it contributes significantly to the global production of fruit. The production of deciduous fruit is a labour, capital and technology intensive activity, requiring

producers to have access to the necessary resources in order to produce products of good quality that meet the requirements of high value markets. The deciduous fruit value chain is a complex linkage of various production and operational role-players. Within the industry, transformation still a challenge and the absorption of smallholder farmers (new entrants) into the industry very slow.

Having looked at the background of the deciduous fruit industry, the following chapter provides a literature review on costs and value to farmers participating in the value chain.

CHAPTER 3
THEORETICAL FRAMEWORK AND LITERATURE REVIEW

3.1 INTRODUCTION

The purpose of this chapter is threefold: to introduce the concept that smallholder farmers incur costs and gain value in participating in value chains which may influence their choice and ability to participate, to review literature on costs and value, and to propose a conceptual framework for costs and value (functional and experiential) as a way to understand participation of smallholder farmer in the agricultural value chains. This chapter begins by looking at costs and value constructs as they pertain to the participation of smallholder farmers in the value chain.

3.2 THEORETICAL FRAMEWORK

The theoretical framework provided in this section followed the three areas covered in the study, cost, experiential value and functional value.

3.2.1 Transaction costs

In the context of agricultural value chains, costs can be linked with different stages of trading transactions between actors within the value chain (Pingali *et al.,* 2015). For example, farmers incur costs of searching and screening to determine potential buyers and suppliers. Farmers also incur bargaining costs to determine the terms of trade, monitoring and enforcement of contracts, to determine whether the terms agreed upon are complied with (Jaffe, 1995). According to Jaffe and Morton (1995a), these costs take various tangible forms and include licensing fees, travel and communications, product inspection and audit fees, storage and handling costs, legal fees, insurance premiums and many more. Although there is a difference on the interpretation of transaction costs by scholars in numerous studies, transaction costs are typically conceptualised as costs experienced during any exchange between firms and in a market (Hobbs, 1996). The theory of transaction costs is expended in section 3.2.2.

3.2.1.1 Transaction Cost Theory

Transaction costs stems from the Transaction Cost Economics (TCE) paradigm. Transaction Cost Economics, which is a branch of the New Institutional Economics (NIE), has become a prevalent framework in which to analyse market transactions in general (Williamson, 1971 and to analyse agricultural market transactions (Jaffe, 1995; Fafchamp, *et al.,* 2005; Jaffe *et al*., 1995b). The New Institutional Economics (NIE) progressed from the old institutionalist school of thought, for example, Commons (1934), who argued against the notion that economic systems grew as a result

of rational-maximisation and self-seeking behaviour of individuals (Mabuza, 2013). The Old Institutionalists argue that economic systems advance due to adjustments of existing institutions promoted by technological change. TCE as a branch of NIE has progressed over several years and gained distinction from the work of Ronald Coase on the “Nature of the Firm”. In this work, Coase (1937) conceded that there are other costs than using only the price mechanisms such as transaction costs and therefore the price mechanism cannot on its own co-ordinate production. The transaction costs phenomenon was given stimulus by Williamson (1975) who integrated development concepts such as information asymmetry and property rights to articulate a predictive theory about the choice of organisation structure in an industry (Mabuza, 2013). Eggertson (1990) gave impetus to the discussion of transaction costs and highlighted a fine line between transaction costs and information costs. Eggertson (1990) argued that transaction costs are not indistinguishable from information costs and if information is costly to get and interpret, then numerous activities linked to the exchange of property rights among economic agents add to the increase in transaction costs.

Although there is a difference on the interpretation of transaction costs by scholars in numerous studies, transaction costs are typically conceptualised as costs experienced during any exchange between firms and in a market (Hobbs, 1996). We expand on the definition of transaction cost in the sub-section below.

3.2.1.2 Evolution of transaction costs

Scholars in the field of marketing and trade define transaction costs as costs incurred during searching for a partner for an exchange of a product or service, bargaining with possible trading partners, monitoring an agreement and enforcing an exchange agreement (Jaffe, 1995). Williamson (1975) classified these costs into inflation costs, bargaining costs, and monitoring and enforcement costs. The literature further classifies these costs based on whether they are experienced before an exchange (*ex ante*) or after an exchange (*ex post*). *Ex ante* costs typically include costs of searching information on inputs, products, prices and potential trading partners (Key *at al.,* 2000). *Ex post* costs, include costs of monitoring and enforcement of agreements to ensure the agreed terms of exchange are adhered to (Hobbs *et al.,* 1999).

Other scholars categorise transaction costs to tangible or intangible costs (Loader *et al.,* 1996). Tangible costs typically include costs to which monetary value can easily be attached and these costs include communication costs and transfer costs. On the other hand, intangible costs include costs that arise due to information asymmetry (adverse selection and/or mora hazard) Loader and Hobbs, 1996). Adverse selection is an *ex ante* opportunism problem due to hidden private information by one party before a transaction. Swinnen and Gow (1999) explained that the adverse selection problem in agricultural credit schemes arises when those actively seeking loans, with a

potential of producing an undesirable outcome, stand a chance of being selected as a lenders may not have all the information about their creditworthiness. Moral hazard is a *post ante* opportunism problem resulting due to information asymmetry or hidden action by parties during a transaction. For example, the principal may incur transaction costs of monitoring the actions of the agent and enforcing the terms of a contractual agreement (Hobbs and Kerr, 1999).

Transaction costs are also classified as observable and unobservable (Staal *et al.,* 1997; Delgado, 1997). Observable costs include marketing costs such as handling, packaging, transport, spoilage, handling and storage costs, and these costs can be observed when an economic exchange takes place. Unobservable transaction costs include searching, bargaining, screening, information, monitoring coordination and enforcement (Bardhan, 1980).

Transaction costs are further defined based on whether they are fixed or propositional. Key *et al.* (2000) explained propositional transaction costs (PTCs) as costs that change based on how much the economic agent sells or buys, and examples of such costs could be transfer costs articulated as per unit cost of a commodity sold. Key *et al.* (2000) explained fixed transaction costs as costs that do not depend on the quantities of a commodity sold or exchanged and these costs include information costs, bargaining costs and monitoring costs. North (1987) introduced another classification of transaction costs: non-market transaction costs, which include the costs of acquiring permits to participate in business, costs incurred through waiting, going through red tape and paying bribes to officials during an exchange process.

In summarising the definition and classification of transaction costs given above, is apparent that Transaction Cost Economics (TCE) stem from opportunism, information asymmetry and rationalism (Jaffe, 1995; Hobbs and Kerr, 1999). Williamson (1975) argued that while economic agents try to make rational decisions, their ability to evaluate correctly alternative potential decisions is restricted by their cognitive powers. Opportunism arises when economic agents try to exploit situations to their own advantage to maximise economic benefits (Moschandreas, 1997). Stigler (1961) argued that due to the existence of information asymmetry, transaction costs arise from these asymmetries or because of economic agents attempting to mitigate them. Transaction costs can also exits due to rent seeking behaviour.

3.2.1.3 Rent seeking behaviour

Gordon Tullock (1967) first pursued rent-seeking theory. Identification of transfer costs is one of the pillars of the traditional rent-seeking theory is the identification of transfer costs (Tullock, 1967, 1971). A crucial starting point for the traditional rent-seeking theory has been a description of transfer costs and how they relate to competition over rents. Example for transfer costs are expenses for enacting regulation in industry including salaries to lawyers and lobbyists. Existence

of rents brings costly investments into mechanisms for transferring payments as well as costs associated with competing for the revenues.

In agricultural value chains rents can be generated largely by firms and in interactions between firms and local research and technology organisations (Mitchell *et al.,* 2009). Rents in the value chain arise from the control of scarce valuable resources and require protection from competition (Mitchell *et al,* 2009). These rents are recognised by creating barriers to entry especially for smallholder framers. The ability to generate and appropriate rents is central to chain rents distribution, at one point in time and over time. Kaplinksy (2005) identifies four families of rents. A first is building monopoly power and using anticompetitive practices within the value chain in the form of cartels in an attempt to exclude competitors. A second family of rent is resource rent it terms high-yielding agricultural land. The third and fourth family of rent show the power of human agency to cut costs and improve products by augmenting production processes, organisational systems and product and service design and delivery (Mitchell *et al.,* 2009).

Having defined transaction costs, the following sub-section looks at empirical studies that have investigated the phenomenon of transaction costs.

3.2.1.4 Empirical literature on transaction costs in agricultural value chains

A number of empirical studies have investigated the phenomenon of transaction costs in agriculture. These looked at how transaction costs affect farmers' participation in input and output markets. They also investigated the effect of transaction costs on the choice of marketing channels. "Transaction costs can significantly affect agents and farmers decision on whether or not to participate in the market" (Cuevas, 2014, page 28).

Okoye *et al.* (2016) examined the effect of transaction costs on market participation among smallholder cassava farmers in Central Madagascar and argued that high transaction costs prevent entry of small farmers into the market.

Mabuza *et al.* (2014) conducted a study on the effects of transaction costs on mushroom producers' choice of marketing channels in Swaziland. They found that information and searching costs, monitoring and enforcement costs as well as negotiation and enforcement costs had an effect on the choice of marketing channels.

Jangwe (2011) used a non-separable household model to study the impact of transaction costs on the participation of smallholder farmers and intermediaries in the banana markets of Burundi. The study found that fixed and proportional transaction costs clearly affected the participation of smallholder farmers in markets.

Ouma *et al*. (2010) investigate the transaction cost-related determinants of smallholder farmers' participation decisions in banana markets. The results indicated that geographical location of households, such as geographical location of households, travel time to the nearest urban centre and market information sources, influence market participation.

Alene *et al.* (2008) conducted a study in Kenya investigating the effects of transaction costs on small-scale marketed surplus and input use using a selectivity model. This study revealed a negative impact of transaction costs on market entry.

Pingali *et al.* (2005) did a study on commercialising small farms and reducing transaction costs and found that transaction costs deter smallholder farmers from participating in the market and therefore deprive them an opportunity of commercialisation in agriculture. In this same study, it was found that household specific factors such as age, gender, education, aversion to risk and uncertainty, intra-household interaction and social networks and organisation affect the costs of seeking information, negotiation, enforcement and monitoring.

The study revealed that travel costs in input and output markets had an effect on use of inputs. Renkow, Hallstrom and Karanja (2004), conducted a study in Kenya on rural infrastructure, transaction costs and market participation, and argued that economic isolation has a positive relationship with the size of the fixed transaction costs. Obare *et al.* (2004) investigated the effects of poor road infrastructure on smallholder farm production in Kenya using data from a 1998 survey of farm households, and found that farmers incur high access costs due to simultaneous estimation of costs and input share.

Heltberg *et al.* (2002) did a study on agricultural supply response and poverty in Mozambique using exogenous variables such as type of transport and distance as proxies for transaction costs to examine fixed transaction costs. They found that non-price factors such as farm endowments, technology, and transport infrastructure are important. Winter-Nelson and Temu (2002) investigated the role of relative prices and transaction costs among Tanzanian coffee growers, trying to explain the low use of chemical inputs among these growers.

Key *et al.* (2000) studied on transaction costs and agricultural household supply response and found that in the household's market supply decision, only proportional costs are significant. Holloway *et al.* (2000) used a Tobit model to investigate how transaction costs effect market participation by Ethiopian dairy small-scale producers.

Omamo (1998) studied transaction costs and smallholder cropping choices in Kenya using an integrated household model with transaction costs as an endogenous variable. The study found that tension between gains from specialisation and corresponding increases in transaction costs lead to enterprise diversification on small farms.

Staal *et al.* (1997) conducted a study in East Africa and investigated the role of cooperatives in reducing transaction costs in small dairy farming and analysed the determinants of producer prices received by dairy producers. They found that assets, information and different levels of access to infrastructure explain why farmers accept different prices for milk.

Goetz's (1992) study on household food marketing behaviour in sub-Saharan Africa used a selectivity model. He associated the inability to participate in certain commodity markets to high fixed transaction costs. Sadoulet and de Janvry (1995) argued that poor infrastructure and distance from markets increase transaction costs such as search, recruitment and incentive costs to labour because of imperfect information and supervisions.

In summary, these studies investigated what is referred to as tangible transaction costs but have not investigated the intangible/hidden transaction costs, which may determine participation of farmers in the value chain. In the definition of transaction costs, North (1987) refers to non-market transaction costs as costs of acquiring permits to participate in business, costs incurred through waiting, going through red tape and paying bribes to officials during an exchange process. In this study, the costs are referred to as intangible costs or non-transaction costs.

3.2.1.5 Costs to smallholder farmers participating in the agricultural value chains

Participation of smallholders in the agricultural value chain comes with additional costs related to a new system of production and the efforts to comply with certain standards. These costs are referred to as transaction costs. Studies done by Key *et al.* (2000), Makhura *et al*. (2001) and Goetz (1992) have documented transaction costs as one of the fundamental reasons for smallholder farmers' failure to participate in markets. For example, these studies have shown that the costs of certification can be higher than the benefits from selling a product to international buyers. Transaction costs tend to favour large producers in the chain (Jaffe, 1995; Goetz, 1992; Key *et al.,* 2000; Pingali *et al.*, 2005). Swinnen *et al*. (2013) alluded to the fact that within the rising modern food systems, standards required such as size, quality and delivery times give rise to a new set of transaction costs. Consumers are increasingly conscious of product attributes such as convenience, taste, high quality and variety. Sadoulet and de Janvry (1995) argued that transaction costs, especially for smallholder farmers, include costs that result from distance to markets. Where processing is involved, transaction costs tend to be high due to product screening and grading for quality in various stages in the value chain (Jaffe, 1995). Smallholder farmers are subjected to the costs mentioned above.

3.2.2. Concept of value

In the literature, there are many ways to explain, define or describe value. From a marketing theory perspective, customer value refers to customers' perceptions of what they receive, in return for

what they sacrifice (Zeithaml, 1988). Monroe (1990) argued that buyer's perception represents a trade-off between the qualities or benefits they perceive in the product relative to the sacrifices they perceive by paying the price. In other words, *perceived value = perceived benefits/perceived sacrifice.* Woodruff (1997) defines customer value as a customer's perceived preference for and evaluation of those products' attributes, attribute performance, and consequence arising from use that facilitate (or block) achieving the customer goals and purposes in use situations.

Anderson and Sullivan (1993) define value as the perceived worth in monetary units of the set of economics, technical, service and social benefits received by a customer or firm in exchange for the price paid for the product. Woo (1992) proposed four general meanings of value. Firstly, he defined value as what is a true worth to people in a broader context of the well-being and survival of individuals and by extension of species as a whole. Secondly, he defined value as what a society collectively see as important, regardless of whether or not such highly valued objects of consumption really contribute to his or her well-being. In this definition, value is reflected as a more collective/objective interpretation. Thirdly, he defined value as what the individual holds to be worthwhile to possess, to strive or exchange for. What can be deduced from this definition is that value is more individual and subjective. The fourth definition of value according to Woo (1992) refers to the amount of utility that consumers see as residing in a particular act of buying or consuming. In this definition, value is derived from the purchase, consumption and disposition of products and services. Due to this variety, there is no unanimity on the definition of perceived value.

Woodall (2003) performed an extensive review of literature on perceived value. He distinguished four types of value (intrinsic, exchange, use and utilitarian value). This distinction was based on whether the value assessment is subject-based or object-based, individual versus collective, and on whether value should be viewed in light of market characteristics and/or consumer sacrifices. Woodall (2003) therefore defined *intrinsic value* as an object-based value that resides within the product and does not depend on market circumstances. What can be deduced from this definition is that the objective value assessment is made when people analyse intrinsic product characteristics before or during use. Woodall (2003) defines *exchange value* as object based; however, it is influenced by market circumstances. *Use value* is observed as individuals evaluate the product during or just after use, and is subjective as it is attributed with the rewards that the user individually desires from the use of the product. *Utilitarian value* is explained/viewed as subject based and refers to the point where intrinsic value and/or use value are compared with the sacrifice the person made in order to experience those forms of value.

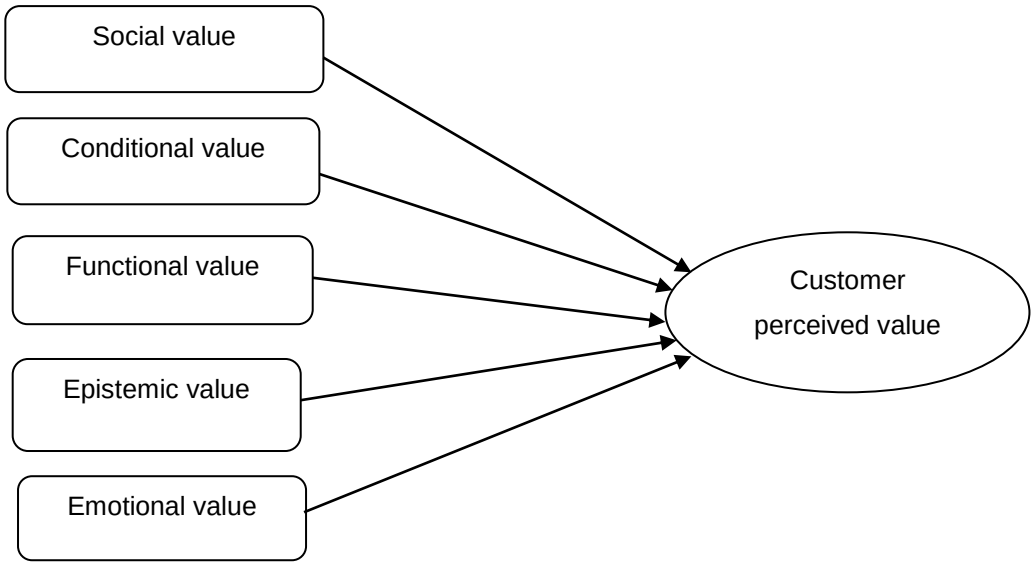

Figure 3.1: Multidimensionality of perceived value

Source: Compiled by Author based on Sheth *et al*. (1991), Sweeney, and Soutar (2001)

Upon investigating the concept of perceived value, two major approaches emerge: conceptualisation and dimensionality of perceived value. In the conceptualisation approach, perceived value is defined as a construct configured in two parts: the benefits received, e.g. economic, social and rational; and the sacrifices made by the customer, e.g. price, time, effort, risk and convenience (Roig *et al*., 2006 citing Dodds *et al*., 1991; Grewal *et al*., 1998; Cronin *et al*., 2000; Monroe, 1990). As we argued above, we summarised these costs as costs to farmer with five identified drivers of these costs. Ziethaml (1988) explained that the benefit component includes the perceived quality of the service received from the purchase and a series of psychological benefits. The sacrifice component, in other words, what the customer must contribute, would be informed by monetary and non-monetary prices (Roig *et al*., 2006).

In the multidimensional approach of perceived value, Woodruff (1997), De Ruyter *et al*. (1997); Sweeney and Soutar (2001) and Sánchez *et al*. (2006) conceived perceived value as a multidimensional construct. In this approach, perceived value incorporates an affective dimension (Roig *et al*., 2006). Part of this dimension is the quality of the product and quantity of the service. The affective dimension is divided into emotional (feelings or internal emotions) and social (social impact of the purchase) (Roig *et al*., 2006). Authors such as Mattsson (1992) deal with the multidimensionality of perceived value by capturing the cognitive and affective aspects of perceived value. De Ruyter *et al*. (1991) in a study on the durable goods industry suggested a more comprehensive approach on value which captures cognitive response i.e. value for money and affective components. Sheth *et al*. (1991b) and Sweeney *et al*. (2001) agrees with Mattson (1992)

and proposed five dimensions of the concept of value: emotional, social, functional, conditional and epistemic (see Figure 3.3).

Sweeney and Soutar (2001) proposed the same dimensions but did not consider conditional and epistemic dimensions as those proposed by Sheth *et al*. (1991a; 1991b). These value dimensions are expanded above.

Social value can be defined as the value derived from association with demographic, socio-economic and cultural ethnic groups or communities (Maas, 2007). Sweeney and Soutar (2001) refer social value to the utility derived from the customer association with certain social groups. Peachy and Arora (2016, page 3) explain social value "as what the customer gets in terms of status, often within a group context, from being served". According to Park and Lessig (1977), customers' evaluation of provided services is thought to be significantly influenced by the association a customer has within members of important reference groups. Sheth *et al*. (1991b) argued that social value "results from a psychological connection with a positively or negatively stereotype demographic, socioeconomic and cultural ethnic groups and products that are consumed in public are attributed to such value".

Conditional value is "described as the set of situations faced by a customer when making a decision, meaning that a customer's choice is contingent on the presented set of circumstances" (Sweeney, 2008, page 9). Conditional value came through the introduction by Sheth *et al*. (1991b) and it emanates from literature that examines situational contingences, physical surroundings, antecedent states, task definitions and classification of situational characteristics. Holbrook (1994) stipulates that conditional value depends on the context in which value judgement occurs and only exits within the specified condition.

Functional value "is related to economic utility, which indicates the benefits associated with possessing the service as in economic person theory, and underlines the performance of the object in terms of a series of salient attributes including price, reliability and durability" (Sweeney, 2008, page 9). Holbrook (1994) states that functional value represents value derived from effective task fulfilment and often relates to monetary value.

Epistemic value "is the capacity of a service to provide novelty or satisfy a desire for knowledge" (Sweeny, 2008, page 9). Customer behaviour is generally driven by the epistemic value of a product with curious, novel, complicated or unique values (Schiffman & Kanuk, 1987). However, Sheth *et al*. (1991a) state that customers who are motivated by epistemic value often return to their regular consumption patterns after satisfying their need for change.

Emotional value represents the capacity of a service to ensure feelings or affective state and is measured in terms of a set of feelings towards its objective (Sweeney, 2008). Sheth *et al*. (1991a);

Sweeney *et al*. (1991) contend that emotional value is derived when a product or service arouses feelings or effective state.

The concept of value has evolved over time (see Figure 3.2). Customers used to look for value in products and services, which we refer to as functional value, and in the case of smallholder farmers refers to upgrading, but now they look for value in experiences which may be named as "experiential value" (Varshneya and Das, 2017). According to Schmitt (1999), experiences emerge out of observation or participation in events as a response to a certain stimuli: experiences are not spontaneous but rather are created. Caru and Cova (2003) argue that experiences are individual events that could change people's behaviour and beliefs, and that experiences are felt rather than read as text. It is argued that smallholder farmers' participation in the value chain induces experiential value.

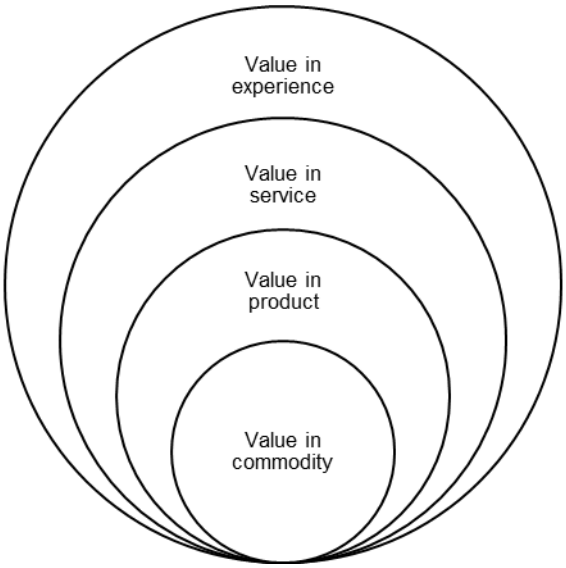

Figure 3.2: Paradigm shift from 'value in commodity' to 'value in experience'

Source: Varshneya *et al.* (2017)

Experiential value refers to customers' perceptions of products or services through direct use or indirect observation (Mathwick *et al.,* 2001). Lee and Overby (2004) argue that value is subjective and is created based on the exchange of experience that is incurred in the process of transactions or individual perceptions. The value derived from experience gives customers internal and external benefits, which are also referred to as intrinsic/extrinsic values (Mano & Oliver, 1993; Batra & Ahtola, 1991). Addis and Holbrook (2001) argue that value is not confined to utilitarian value, which is also referred to as functional value, but also covers hedonic value, which is also known as experiential value. Research done by Batra and Ahtola (1991) and Babin *et al.* (1994) promoted the importance of thinking and feeling dimensions of value.

During the 1990s, the multidimensional view of value became popular which reflected that value is an aggregate concept comprising several aspects. Several studies indicated that experiential value may also be contemplated as a multidimensional construct (e.g. Mathwick *et al.,* 2001; Sánchez *et al.,* 2006; Williams & Soutar, 2009). The multidimensional view of value emphasised that customers not only seek functional value from a purchase or transaction but also pursue emotional and social value. Based on this underlying view, several authors theoretically proposed various dimensions of value. For example, Sheth *et al.* (1991b) asserted value dimensions as functional, social, emotional, epistemic and conditional, while Holbrook (1994) came up with another dimension of experiential value, active/reactive, and argued that the active value comes from the increasing collaboration between customers and businesses, while the reactive value comes from customers' evaluations, responses, and understanding of the services or products they want to purchase.

It is argued above that smallholder farmers' participation in the agricultural value chain is influenced by the value they accumulate in participation in the agricultural value chain. The following sub section will look at empirical studies focused mainly on experiential value.

3.2.2.1 Empirical literature review on experiential value

Wu and Tseng (2015) found that sense, feel, and relate were significant predictors of customer satisfaction. This study was conducted in Taiwan and explored the type of experience preferred by consumers of lativ, a well-known low-cost apparel brand in Taiwan, and further examined the relationship between customer satisfaction and loyalty.

Pham and Huang (2015) studies the impact of experiential marketing on customer's experiential value and satisfaction in the hotel sector in Vietnam. Structural equation modeling (SEM) was employed to test the theoretical model. The results of the study suggested that experiential value including sense perception, feel perception, think perception and the components of experiencing process comprising service quality, service innovation should induce customer satisfaction through functional, emotional, and novelty values.

Nigam (2012) conducted a study in Organized Quick Service Chain Restaurants modelling relationship between Experiential Marketing, Experiential Value and Purchase Intension. The study used Structural Equation Modelling as a technique. This study concluded that experiential value (sense, feel, think, act and relate) of the consumers would affect the purchasing intention of the consumers.

Maghnati *et al.* (2012) conducted a study exploring the relationship between experiential Marketing and experiential value in the smartphone industry. The study used a Principal components

analysis and multiple regression technique. The study provided insights for the smartphone industry towards the factors such as sense experience, feel experience, think experience, act experience, and relate experience that contributing to the experiential value with their customers.

Wong and Tsai (2010) did study on the effects of service encounter and experiential value on consumer purchasing behaviour. The study was conduct in the beauty stores in Taiwan. A structural equation model (SEM) technique was employed to validate and test three hypotheses developed for the study. The results of the analysis showed that experiential value (feel experience, act experience and relate experience) had an impact on purchasing.

Mathwick *et al.* (2001) conducted a study in the catalog and internet shopping environment and proposed a 19 item scale which comprised of four experiential value dimensions aesthetics, service excellence, playfulness, customer return on investment. A structural equation modeling technique was employed. The results of the study indicated that the experiential value dimensions, which emerged as significant predictors of patronage intent, differ in catalog shopping and internet shopping. Customer return on investment (CROI) was a significant predictor of patronage intent in internet shopping.

In summary, the studies above have investigated experiential value in various industries such as textile, hospitality, communication, beauty and IT but not in the agricultural sector. The current study attempts to use the same experiential value model in the agricultural sector. The following sub-section will look at the value chain theory.

3.2.3 Value Chain Theory (Upgrading)

Upgrading is another concept of analysis within Global Value Chain (GVC) research. It was introduced by Gereffi a year after he introduced the global commodity chain framework in 1994. Literature on upgrading first arrived in Global Value Chain analysis in the late of the 1990s and was shaped by the literature on ‘Post-Fordism’ as well as by Gereffi’s own research on the apparel chain. It is a classic approach used to identify the possibilities for producers to move up the value chain hierarchy. The upgrading is therefore built on the work of Gereffi (1999) and Kaplinsky (2000). Upgrading is defined by McDermott (2007, page 104) as: “the shift from lower to higher-value economic activities by using local innovative capacities to make continuous improvements in processes, products and functions”.

The application upgrading in the value chain by smallholder agricultural draws from the literature on global value chains (GVC) which analyses how emerging economies are being integrated into global markets and the governance of these processes (Kaplinsky and Morris, 2000, Humphrey and Schmitz, 2000, Gereffi *et al.,* 2001; Trienekens, 2011). The literature on global value chains

analyses how emerging economies integrate into global markets and the governance of these processes (Kilelu *et al.,* 2017). The upgrading of smallholder farmer's agri-value chains is focused on innovation processes (Ayele *et al.,* 2012). For smallholder, upgrading in international and domestic markets indicates upgrading as a processes of identifying leverage points for change (Trienekens, 2011; Lee *et al.,* 2012). According to Kilelu *et al.* (2017) this upgrading goes past general arguments on market integration, production efficiency and growth. It is about unlocking socio-technical and institutional barriers that inhibit the integration and performance smallholder farmers into value chain. These include access to technology, credit, inputs, market information and physical infrastructure.

3.2.3.1 Value capture by smallholder farmers in the agricultural value chain

Generally in agriculture, the benefits of value chain integration for smallholder farmers has been largely attributed to upgrading which includes the use of improved seeds, fertilizers, irrigation, new crops, services (such as spraying, artificial insemination) and adoption of new production technologies. Understanding farmers' perceived value in relation to value chain participation will help to get a balanced view of value creation and capture in the smallholder value chain. Smallholder farmers participate in higher value markets to improve their products and processes through upgrading. However, the outcome of concern is smallholders' ability to capture some of the additional value they create. Upgrading is viewed as a mechanism to capture value within the value chain as it relates to the product. McDermott (2007, page 104) defines upgrading as "the shift from lower to higher-value economic activities by using local innovative capacities to make continuous improvements in processes, products and functions". For farmers, upgrading means improving their farming and business skills. This will allow them to capture more value in a value chain. Upgrading could also help farmers improve their activities, and find new partners, new practices, and new ideas to get their products to market.

Although upgrading is the core of inclusive value chain development because it adds value by improving efficiency (process upgrading) and/or product quality (product upgrading), what farmers experience as value in participation in the value chain is crucial. This will facilitate an overall understanding of the value proposition in the value chain and enhancement of the value chain development involving smallholder farmers. It is argued that there are different concepts of value that should be considered: those that drive an improvement of the value of the output by the smallholder farmer, and those that pertain to the smallholder farmer him/herself, the functional and experiential value. It is clear that the upgrading effects on value and the functional value of participating in a value chain largely overlap. It is therefore argued that functional value includes the improved or gained value in a more physical sense (e.g. higher prices per product sold). That leaves experiential value, which is intrinsically gained by the smallholder farmer, and is driven by

improved learning and experience, gained confidence and control, and similar aspects as will be shown later. In addition, smallholder farmers also gain value by participating, thus over and above the product, process and functional value addition, inclusion experiential value is considered as a more complete assessment of value that can be used to understand the drivers to participate in value chains. The sections above have looked at the theoretical framework and review literature studies on transactions cost and experiential value. The following section will now look at the conceptual framework for the study.

3.3 CONCEPTUAL FRAMEWORK

3.3.1 Conceptual framework for costs

Coetzee (2012) working on the drivers of exclusion in financial markets developed a framework called the cost to customer (CtC) framework, which identifies intangible costs and termed them indirect costs. In this study, it is argued that these costs could affect farmer's participation in the value chain. This framework proposed a look at other indirect/hidden costs such as economic costs (opportunity cost of time, bonding costs), psychological costs (stress and fear), compliance and regulatory cost (cost of documentation to adhere to Know Your Client (KYC) requirements and legal and formal business requirements), as well as social and cultural costs (driven by age, gender, religion) and summarises these costs as costs of being part of a network to improve access. These costs are expanded below.

3.3.1.1 Economic costs

Economic costs as suggested by Coetzee (2012) include the opportunity cost of time. Literature on convenience and time-resource management shows that customers generally perceive time and effort as costs (Anderson, 1972). For example, in accessing financial services these costs could be the cost to apply for a loan as well as indirect cash expenses for things such as transport, documents and taxes needed to use a financial contract (Coetzee, 2012; Ndimbwa, 2013). In the context of value chain, these costs could be bargaining costs to determine the terms of trade and monitoring and enforcement of contracts to determine whether the terms agreed on are complied with (Jaffe, 1995). In addition, these costs could grouped as bonding costs, thus costs incurred to be included in contracts and transactions as per the agency costs structure (Jensen & Meckling, 1976).

3.3.1.2 Psychological costs

Another cost component is psychological costs. These are non-monetary costs which refer to frustration, anger, fear and uncertainty (Baker *et al.,* 2002). The psychological costs were first identified by Adam Smith (1776) and taken into account in Sandford's definition of compliance

costs. In tax literature, Sandford (1973) defines psychological costs as costs that comprise stress, anxiety, and frustration caused by complying with complex legislation. According to Sandford (1973), psychological costs belong to a group of compliance costs, which also include time costs and other monetary costs. In the marketing literature, Baker *et al.* (2002) describe psychological costs as consumer's mental stress or emotional labour during the shopping experience. It follows that these costs could be prevalent for smallholder farmers engaging with new actors, and with new requirements to be included in contracts that give access to guaranteed markets. Carmon *et al.* (1995) argued that psychological costs often originate from perceptions of risk.

3.3.1.3 Regulatory and compliance costs

Due to the increase of modern food systems there is a rise in another set of transaction costs, regulatory and compliance costs, due to standards required in terms of quality, size and delivery terms (Jaffe, 1995; Goetz, 1992; Key *et al.,* 2000; Pingali *et al.*, 2005). Farmers have to put monitoring systems in place in order to monitor the quality of their produce. Moreover, products are inspected by inspection bodies such as PPECB and these add costs to farmers. Farmers have to comply with labour laws, and in the case of deciduous fruit, they have to go through the Sustainability Initiative of South Africa (SIZA) in order to comply. For farmers to get access to modern value chains, certification according to these standards is essential and is conditional (Dolan & Humphrey, 2000). Because of these standards, access to modern value chains by smallholder farmers is difficult in many instances impossible (Dolan & Humphrey, 2000). Therefore, compliance and standards constitute high certification costs for smallholder farmers and high monitoring costs for buyers. Participation of smallholder farmers in a high value chain is a challenge due to the financial implications of investing in costly certification of standards compliance (Dolan & Humphrey, 2004; Lee *et al*., 2010; Maertens & Swinnen, 2009). In addition, due to the Know Your Client (KYC) regulations to ensure compliance with Anti-Money Laundering (AML) and the combatting of terrorism rules at the international level, smallholder farmers also incur costs to prove identity and origin.

3.3.1.4 Social and cultural costs

Social and cultural costs play a significant role in smallholder farmers' participation in the value chain (Cuevas, 2014). There are features of society and culture that may act as barriers to participation in the value chain. Religious differences could create tension among farmers and affect meaningful participation by farmers in the value chain. Farmers who belong to certain religious groups have common attitudes and attributes, and these may affect their ability and willingness to work closely with farmers belonging to other religious groups. Some religious rules, as in the case of Sharia'h rules, prevent smallholder farmers from the Islamic faith from participating in Western models of banking, such as paying interest rates, which make it difficult to

obtain access to loans where there are no Sharia'h compliant financial services (El-Zoghbi and Tarazi, 2013).

The culture of any grouping within a society becomes an accepted way of doing things with a particular society. This culture is the way in which people live, practice their traditions and customs, and specifically in agriculture, their methods of farming and so on. Sex status could be a barrier to participate and could cost certain farmers in taking opportunities of upgrading in the value chain. For example, Gotschi *et al.* (2009) found that in Mozambique, married women need permission from their husbands before they can participate in any grouping. In numerous contexts, gender has been found to affect participation in grouping and value chain processes (Tanwir and Safdar, 2013). In many countries in the world, women are often excluded from participation in decision-making and groupings within the society (Agarwal, 2001; Gotschi *et al.,* 2009; Tanwir and Safdar, 2013). In certain areas, socio-cultural norms restrict women's mobility and ability to interact with opposite sex, including their ability to attend training (Fletschner and Kenney 2011).

Socio-cultural barriers to land and property ownership have an impact on women's transaction costs and participation in markets (Fletschner and Kenney, 2011). For example, inherent rights often bestow land and livestock to men leaving women disadvantaged (Argawal, 2003). Lastly, many insurance products also prohibit older farmers from obtaining insurance over the longer term, or at all. In fact, many rules prohibit access to financial services for the too young and the too old (Karlan, 2014; Crosby *et al*., 2008). Economic differences among people in the society are a central part of social structure. For example, the amount of money they earn, their interests, the quality of their land etc. The factors divide society into divergent groupings with different values and attitudes. Participation can then be influenced by age, educational level, status, and access to assets (Kaaria, *et al.,* 2016).

3.3.1.5 Direct financial costs

Direct financial costs take various tangible forms and include licensing fees, travel and communications, product inspection and audit fees, storage and handling costs, legal fees, insurance premiums and many more (Jaffee *et al*., 2011). In high value chains, transportation is essential and forms part of high transaction costs for smallholder farmers. For example, direct financial costs include transportation of produce from the farm gate to the market. Pingali *et al*. (2005) argues that in high value chains where perishable products are involved, transaction costs are usually high due to rapid transportation and cold storage requirements.

It is argued that the costs highlighted above constitute a more complete construct to consider the full transaction costs to smallholders participating in the agricultural value chain and are a

determining factor for participation. The conceptual framework shown in Figure 3.3 is thereof proposed.

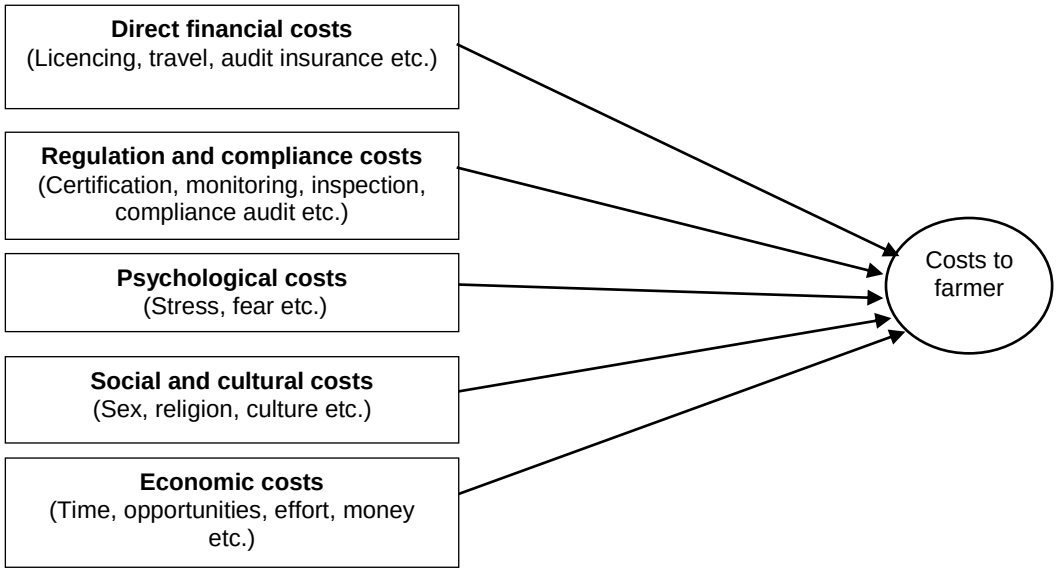

Figure 3.3: Proposed conceptual framework – cost to farmer

Source: Adapted from Coetzee (2012)

The following section therefore looks at the concept of value, the functional and experiential value gained by smallholder farmers participating in the value chain.

3.3.2 Conceptual framework for experiential value

In his seminal work, Schmitt (1999) developed a concept of experiential value based on consumer social and psychology behaviours. This conceptual framework comprises five strategic experiential modules: *Sense*, *Feel*, *Think*, *Act*, and *Relate* as suggested by Schmitt (1999) but also include Return on investment and Satisfaction (Yi-Hua *et al*., 2008).

3.3.2.1 Act experience

Act experience means new ways of doing things, new lifestyles and attitudes and relates to consumers' physical body and long-term patterns of behaviour (Wong and Tsai, 2010; Yuan and Wu, 2008). It can also be defined as the experience that enables consumers to develop experiences relate to their physical body, behaviour and lifestyle, as well as the experience gained from the social interaction with other people (Schmitt (1999; Maghnati *et al.,* 2012).

3.3.2.2 Feel experience

Feel experience is defined by as experience that come from the customers' inner emotion, mood and feeling during consuming products and services (Yuan and Wu, 2008; Maghnati *et al.*, 2012). Strong and positive emotion effect the customer relation with company's products and services (Maghnati *et al*. 2012; Wong and Tsai, 2010).

3.3.2.3 Think experience

Think experience is defined as the experience, which stimulates customers to be creative in developing a new idea or thinking about a company or its products and services (Schmitt, 1999; Maghnati *et al.,* 2012). Through the process of creating a new idea or thinking, consumers make their own evaluation towards the company's offerings (Maghnati *et al.,* 2012). According to Wong and Tsai (2010), *Think experience* refers to the consumer's intellect and rational interests. It can be further explained as engaging in creative and innovative thinking about the company and its products (Yuan and Wu*,* 2008).

3.3.2.4 Relate experience

Relate experience is when an individual connects with other people, society, group and this connection produces a powerful experience. This experience is closely bound up by external factors such as culture, class and family background (Wong and Tsai, 2010).

3.3.2.5 Return on investment

Customer return on investment refers to active investment of financial, behavioural and psychological resources that potentially yield a return (Mathwick *et al.,* 2001). The consumer might experience this return in terms of utility from the efficiency of an exchange encounter and economic utility.

3.3.2.6 Satisfaction

Satisfaction is defined by Kotler & Keller (2012) as consumers' feeling of being happy or upset that generated from comparing an outcome they received and expectation they have. It can also is derived from a comparison of product or services

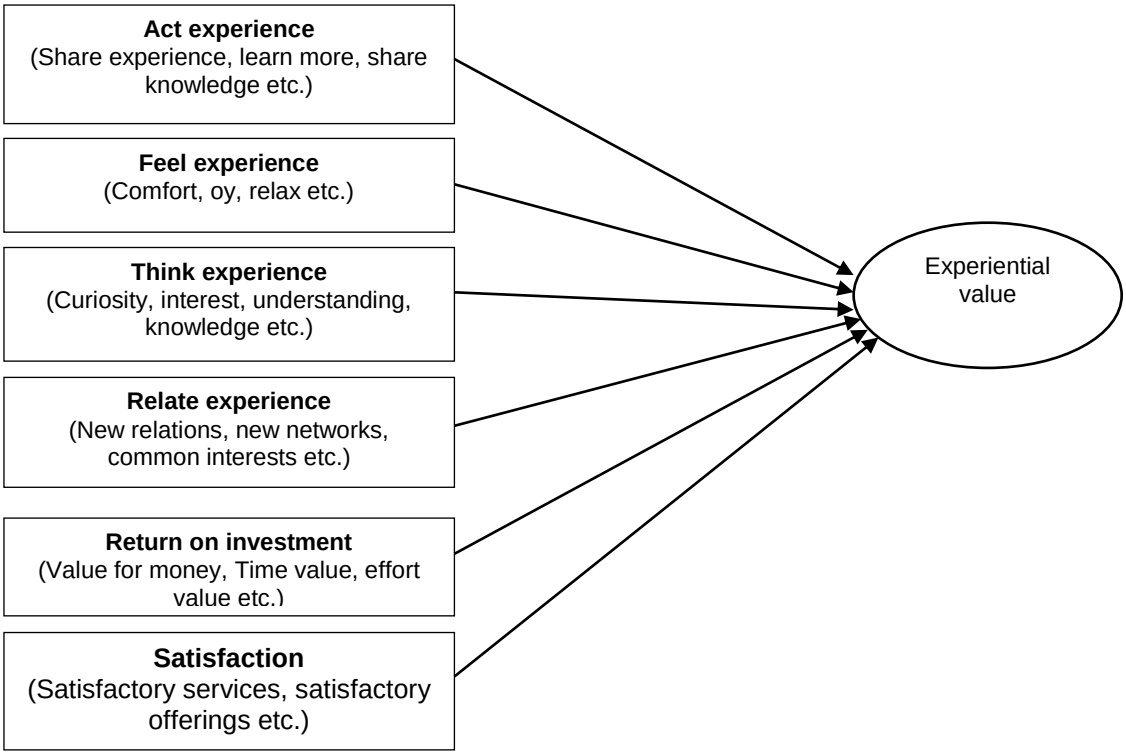

Figure 3.4: Proposed conceptual framework – experiential value

Source: Compiled by Author based on literature

Thus, it is argued that experiential value may be considered as a strong theoretical foundation for understanding and examining experiential value for famers' participation in the agricultural value chain. In this study, it is argued that, as a result of what farmers are experiencing in the value chain, they have different perceptions and reactions to these stimuli. They develop varied perceived value derived through participation in the value chain. Based on the definition and explanation of these constructs, six of the constructs are selected to constitute a conceptual framework shown in Figure 3.4, as we believe that they may influence smallholder farmer's participation in high agricultural value chains.

It is argued therefore that these experiences are applicable to farmer's participation in the agricultural value chain. For example, being part of the value chain provides an opportunity for farmers to get new experiences through *Sense* (seeing and hearing new information). Again, being part of the agricultural value chain could potentially create an emotional experience (*Feel experience*) for farmers. Farmer's interaction with actors (*Relate experience*) in the value chain has a potential to induce such powerful experiences. Mathwick *et al.* (2001, citing Holbrook, 1994) proposed four constructs of experiential value: consumer return on investment, service excellence, playfulness, and aesthetic appeal.

3.3.3 Conceptual framework for functional value

Upgrading in the value chain takes four major strategies or trajectories, product upgrading, process upgrading functional upgrading and upgrading the institutional environment (Kaplinsky and Morris, 2001). These upgrading trajectories are further discussed below.

3.3.3.1 Product upgrading

Product upgrading entails introducing new products or improving old products and this entails changing product development processes. Product upgrading in smallholder agriculture includes planting new crop varieties that consumers prefer and complying with food safety standards.

3.3.3.2 Process upgrading

Process upgrading process upgrading essentially means improving farming practices, increasing yields, and implementing better pest control and/or storage, and may include better marketing and packaging. These practices can result in better inclusion in a value chain, driven by higher yields, more sales and more profit for the farmers.

3.3.3.3. Functional upgrading

Functional Upgrading entails performance of more tasks in the chain, for example, processing, packaging or even sales. This type of upgrading allows farmers to capture more economic rent, which can translate to more income. Economic rent is an incentive or benefit of participation in the value chain. Trienekens (2011) argued that in order for farmers to capture these rents, they have to meet a number of conditions such as the infrastructure to bring the products to market, availability of resources, knowledge and capabilities of chain actors.

According to Trienekens (2011, page 63) there are five categories of value added capture:

- “trade rents (forthcoming from production scarcities or trade policies),
- technological rents (related to asymmetric command over technologies),
- organisational rents (related to management skills),
- relational rents (related to inter-firm networks, clusters and alliances),
- branding rents (derived from brand name prominence)”.

Upgrading is essential to create value chain competitiveness (Dunn, 2014). Entry into high value and international markets has required value chains to meet new standards for product quantity, quality, size, safety and other characteristics. Smallholder farmers have to make their upgrading decisions based on their assessment of the risk-adjusted returns to upgrading, within the context of their alternative opportunities, their resources and capabilities, and their access to information and

learning opportunities (Dunn *et al.,* 2011). Smallholder farmer upgrading is at the core of inclusive value chain development because upgrading adds value by improving efficiency and/or product quality. Upgrading provides an opportunity for smallholder farmers to employ their resources more productively and earn higher returns if market conditions are favourable.

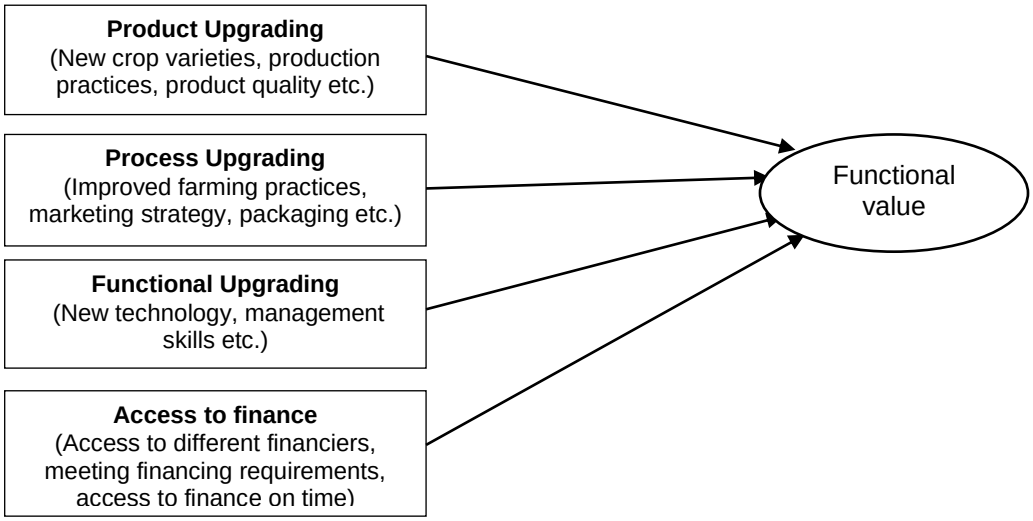

Figure 3.5: Proposed conceptual framework – functional value

Source: Compiled by Author based on literature

3.3.3.4 Upgrading the institutional environment

The focus of this upgrading strategy is on improving institutional bottlenecks which involve support services and legal and policy framework that ultimately constrain value chain operations (Trienekens, 2011; Poulton *et al.,* 2010). In this study, **access to finance** has been identify as one of these institutional bottlenecks. This is a major constraint for smallholder farmers in their quest to take advantage of upgrading opportunities in the value chain. The reality is that many smallholder farmers often face liquidity and credit limitations, which confine their potential to make the necessary investments to upgrade (Fernandez-Stark and Bamber, 2012). It is argued that farmers enter the value chain to access financing as part of their upgrading strategies. For example, the study done by Swinnen (2005) on the dynamics of vertical co-ordination in agro-food chains in Europe and Central Asia found that the dominant motivation for small cotton farmers in southern Kazakhstan to enter high-value contracting is improved access to credit. The study done by Maertens *et al.* (2007), a case study from the green bean sector in Senegal, indicated that 81% of the farmer's motivation to enter the high value chain was access to credit. From the four upgrading trajectories, product, process, and functional upgrading were selected but also include access to

finance as another dimension of functional value to form the conceptual framework depicted in Figure 3.5:

The conceptual framework for the entire study is summarised and illustrated in Figure 3.6. This framework integrates the cost and value constructs that will be used to study the participation of these smallholder farmers into the value chain.

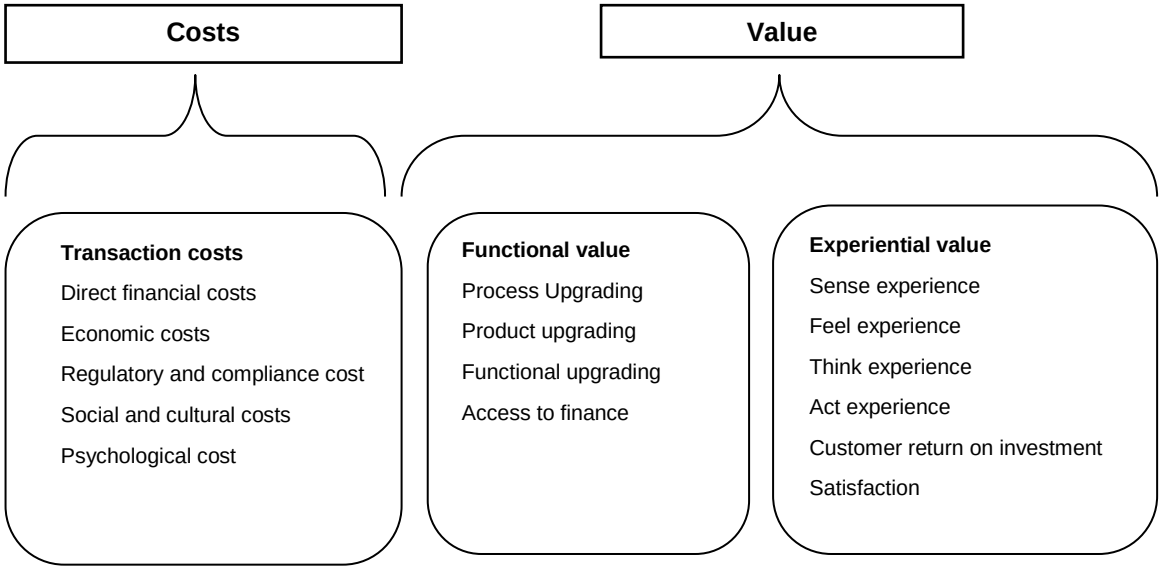

Figure 3.6: Cost and value framework for smallholder farmers

Source: Compiled by Author based on literature

The sections above have looked at the concepts of cost and value and reviewed the literature surrounding the definition and dimensions of these concepts and the provided conceptual frameworks as a base to study these constructs. The following section summarises the issues identified in this chapter.

3.3 SUMMARY

In this chapter, cost and value constructs were introduced, their theoretical background and their relevance in the value chain involving smallholder farmers. Although studies on transaction costs have provided valuable insights into the costs affecting the participation of smallholder farmers in the value chain, it is important to understand other costs such as psychological cost, cultural costs and social costs, which could give an overall picture of cost affecting the farmer's participation in the value chain. Studies by Staal *et al*. (1997), Holloway *et al*., 2000; Key *et al.,* 2000; Makhura *et al*., 2001; Goetz, 1992) on smallholder participation in agricultural value chains have focused on

investigating and documenting direct transaction costs but did not include indirect costs such as social and cultural costs, bonding cost (cost of being part of the network to improve access) and psychological costs. This leaves a knowledge gap in understanding the overall costs incurred by farmers participating in the value chain. The studies are also silent about what farmers perceived as the cost of participating in the value chain.

On the value side, the review of value literature provided an insight on the perceived value by customers based on the marketing perspective. This literature makes a distinction on dimensions of functional and experiential value. This study argues that these constructs are applicable to farmers' participation in high value chains and demonstrate that upgrading is functional value, as explained. The functional value side has been investigated by various studies but there are limited empirical studies and clear literature on the experiential value for farmers in participating in the value chain. To provide a complete view of the value of participation in the value chain by smallholder farmers, the study of their experiential value is proposed in addition to functional value. In the end, to comprehensively understand decisions to participate in the value chain, the value and costs are both considered. This study is conducted on smallholder farmers participating in the South African deciduous industry and Chapter 4 provides the methodology used to study the relevant constructs.

CHAPTER 4
RESEARCH METHODOLOGY

4.1 INTRODUCTION

The previous chapter has outlined the underlying methodological framework for this study. This chapter provides a brief outline of the research methods employed in this study and covers the research design, population and sample, questionnaire design, sampling process and data collection, data analysis methods, ethical considerations and then finally the summary of the chapter.

4.2 RESEACH DESIGN

According to Burns and Bush (2002, page120), a research design is a function of the research objectives and is defined as “a set of advanced decision that makes up the master plan specifying the methods and procedures for collecting and analysing the needed information”. Hair *et al.* (2003) state that a suitable research design is imperative to outline the type of population, data collection technique, sampling method, data analysis methods, the schedule and budget. Aaker *et al.* (2000) state that there are various types of research designs and they are typically classified into three traditional categories: exploratory research, descriptive and causal. This implies a researcher may start with an exploratory study, which gives important background information leading to a descriptive study, which in turn may help the researcher to properly design a causal experiment (Malhotra, 1999). Because of the nature of this study and the objectives outlined in Chapter 1, this study will adopt these research designs (exploratory research, descriptive and casual) as shown in Figure 4.1.

Phase one: *Exploratory research*, which is typically unstructured, flexible and mostly qualitative, is an important foundation of a good study and provides input for further research (Churchill & Lacobucci, 2004; Aaker *et al.,* 2000; Malhotra, 1999). According to Burns and Bush (2002), an experience survey, which is also known as key informant technique, is an addition to the reviews from the literature and gives an opportunity to tap into those familiar with the subject matter: in the case of this study, the industry specialists. In this study, one industry specialists from the deciduous fruit industry (HORTGRO) and one from South African table grape industry (SATI) were interviewed in February 2018. A semi-structured instrument (see Appendix B) was used. Through the semi-structured part of the survey instrument, the interview was specifically to solicit information on the number of farmers participating in the deciduous fruit value chains, and to help to map deciduous fruit value chains (adding to the mapped value chain from the literature) by identifying the actors, supporters and financiers in these value chains. The interview also provided

the researcher an opportunity to understand typical cost structure and value for farmers in these value chains. Through this interview process, the researcher received a lot of industry information provided by the industry experts, for example the number of farmers, their locations, and secondary data such as industry contribution statistics. The outcome of this exploratory phase helped the researcher to develop appropriate survey instruments for various actors and supporters in the deciduous fruit value chains, and to refine survey questions appropriately for each survey instrument. The exploratory research also afforded the researcher an opportunity to design an appropriate target population and to get an indication of an appropriate sample size.

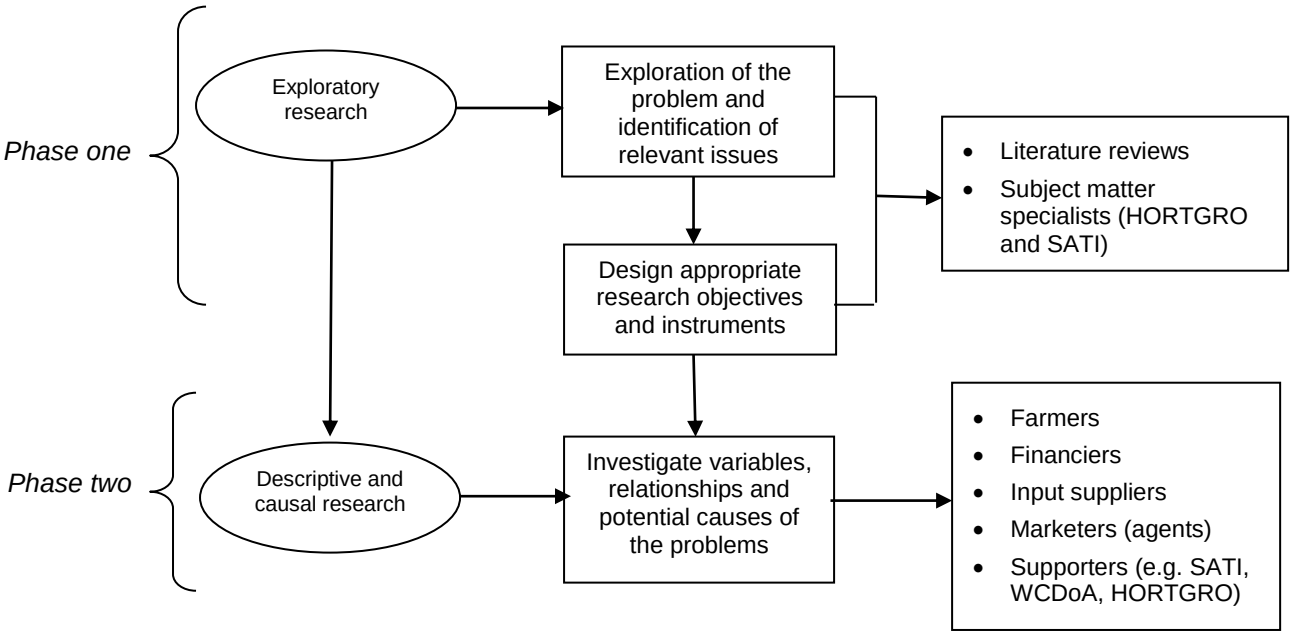

Figure 4.1: Outline of the research design

Source: Author (developed for this study)

Phase two: After going through the exploratory study and obtaining foundation knowledge about the subject matter and basic building blocks that shaped the study process, a ***descriptive research*** was conducted. As opposed to the exploratory study, a descriptive research is more concise, well-planned and structured (Churchill & Iacobucci, 2004; Aarke *et al.,* 2000; Parasuraman, 1991). Glass and Hopkins (1984) state that descriptive research entails gathering data that describe events and then organising, tabulating, depicting and describing the data collection. A descriptive study is typically based on a larger sample (Malhotra, 1999). There are typically three desciptive research methods: observational, case study and survey method (Creswell, 2014). There are typically two basic descriptive research techniques: cross sectional

and longitudinal (Neuman, 2006; Creswell, 2014; Aarke *et al.,* 2000). Longitudinal surveys gather information from the same populations over a period in order to study changes over extended period of time (Creswell, 2014; Burns & Bush, 2002; Malhotra, 1999), while cross-sectional surveys collect information from a sample of a population at a single point in time (Knupfer and Mclellan, 1996; Creswell, 2014; Aarke *et al.,* 2000).

In this study, a survey method was used through a structured questionnaire employing a cross-sectional technique. A decision to use a survey method could be based on a number of factors including popultion type, sampling, question content, question form, costs, response rate and length of the data collection (Aaker *et al.,* 2000). The survey method allowed the researcher to ask the respondents standardised and structured questions about what they think, feel and do (Hair *et al.,* 2003). A cross-sectional technique was used rather than a longitudinal technique because the study does not attempt to examine trends over a long time period. In this study, a survey questionnaire was directly administered by the researcher and trained enumerators. The advantages of a directly administered questionnaire are a high response rate, and the researcher can provide assistance and ease in reaching the participants. The reasons for a personally administered questionnaire are the following:

- A list of farmers invoved in the deciduous fruit value chain was obtained from the industry organisations (HORTGRO and SATI).
- The questions could be answererd by ticking the appropriate response format and due to the presence of the interviewer, respondents could seek clarity on any questions that were not clear (Sekaran, 2000: Aaker *et al.,* 2000).

4.3 THE STUDY AREA, POPULATION AND SAMPLE

4.3.1 Study area and population

The study focused on the deciduous fruit industry value chain within three provinces of South Africa, namely Western Cape, Eastern Cape and Northern Cape. These were purposefully selected because as indicated in Figure 2.1 they produce 96% of the deciduous fruit in South Africa. Limited production is found in Limpopo, Mpumalanga and Free State and these areas were therefore not included in the study. The deciduous fruit industry has well developed value chains and is labour, capital and technology intensive which makes it very challenging for new entrants. There are few smallholder farmers participating in the industry. This is due to the challenges, which include the issues of transaction costs. A list of 133 farmers was obtained from HORTGRO directly and through Innofruit SA, a company contracted by HORTGRO to assist in the delivery of their services to farmers, especially those in the dried and table grape industry in the Northern Cape. Another list of 18 farmers was obtained from SATI), making a total list of 151 farmers. Fourteen

farmer were dropped from this population of smallholder farmers as here not in production during the time of the survey. The distribution of the population is shown in Figure 2.

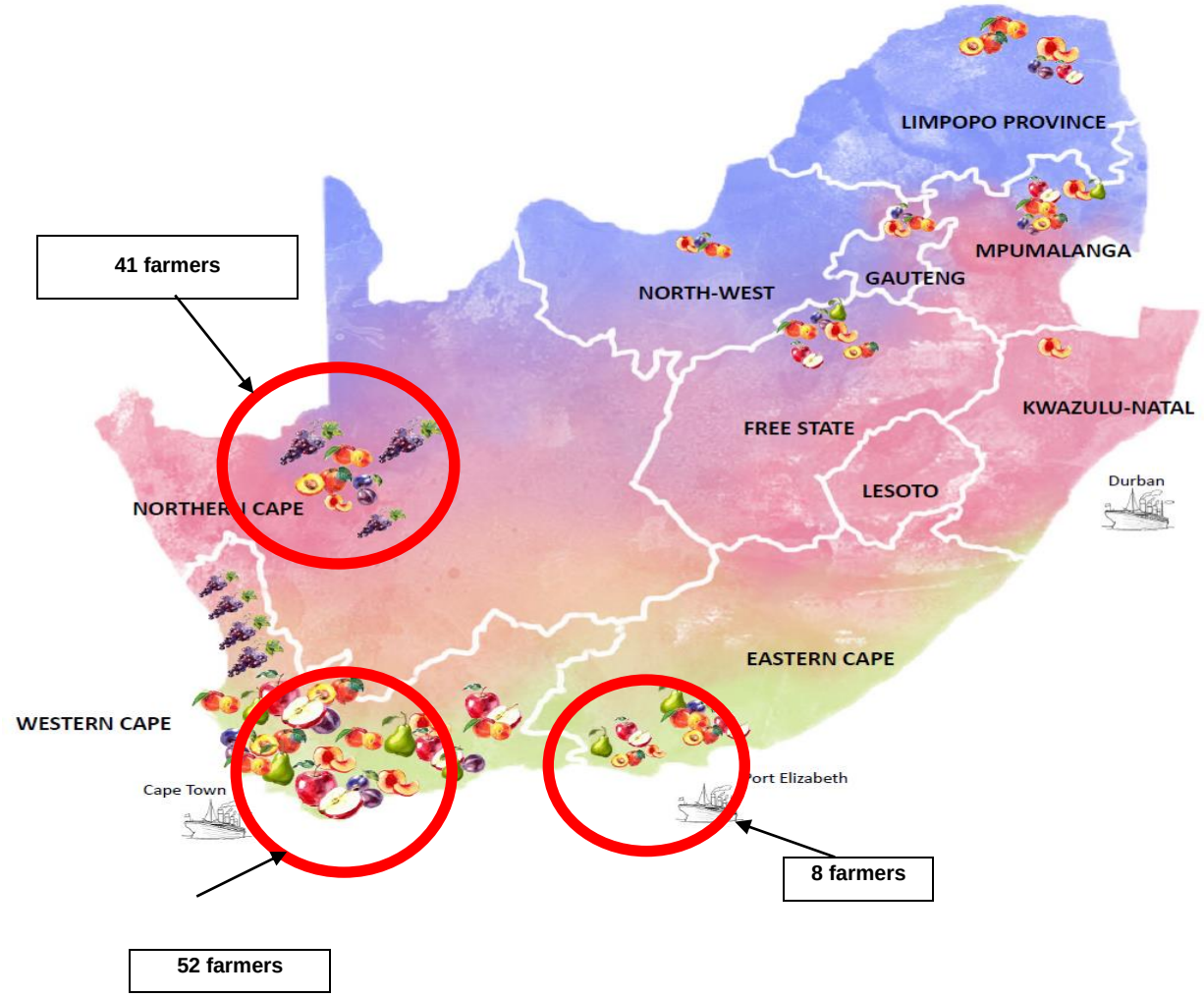

Figure 4.2: Study area

Source: Hortgro (2018)

Limited production is found in Limpopo, Mpumalanga and Free State and these areas were therefore not included in the study. The study area is shown in Figure 4.2**.**

4.3.2 Sampling and sample size

Sampling is a principle that stipulates the conditions and guides the process of selecting the members of population to participate in a study (Burns & Bush, 2003). The choice of sampling method defines the accuracy of research findings, reliability and validity of the study and has huge significance on the overall quality of the study (Oppong, 2013; Creswell and Piano Clark, 2011). Sampling techniques are broadly categorised into ***probability sampling*** and ***non-probability***

sampling (Creswell and Piano Clark, 2011. In probability sampling, each element of the population has a known non-zero probability of being selected (Battaglia, 2008). Probability sampling methods include random sampling, stratified sampling and systematic sampling (Creswell and Piano Clark, 2011). The advantage of a probability sampling technique is that sampling error can be calculated (Oppong, 2013). Sampling error is defined as the degree to which a sample might differ from the population (Battaglia, 2008; Oppong, 2013). This means that when referring to the population, results are reported plus or minus the sampling error (Oppong, 2013). In non-probability sampling, members are selected from the population in some non-random manner (Battaglia, 2008). Non-probability sampling methods include volunteer sampling, convenience sampling, purposive sampling, quota sampling (proportional and non-proportional), snowball sampling, matched sampling and genealogy-based sampling.

The sample in the study consisted of smallholder farmers within the South African deciduous fruit industry. The study used a non-probability sampling technique employing purposive. The reasons for choosing non-probability sampling among others was because there are a limited number of smallholder farmers participating in the deciduous fruit industry, and because of the issue of cost and time. The methods of non-probability sampling include purposive sampling, convenience sampling and snowball sampling. In purposive sampling, the researcher uses personal judgement to choose cases that will assist in answering research questions or achieving the objectives of the research. Purposive sampling can be quota sampling or judgemental sampling. Judgemental sampling needs the respondents to meet the same criteria. In this study, the respondents had to be participating in the deciduous fruit industry whether producing stone fruit, pome fruit or table grapes (dried or fresh).

The original list was obtained from the two deciduous industry bodies: HORTGRO and SATI.

In order to determine a response rate for the study, the following formula was used (Bryman and Bell, 2007).

$$\frac{\text{Number of sample questionnaires}}{\text{Total sample}} \text{ X } 100$$

$$\frac{101}{117} \text{ X } 100$$

$$= 86.3$$

The aim was to include all the 137 farmers in the same, however, 101 were managed to be contacted and interviewed. The distribution of the sample is showed in Figure 4.2.

4.4 THE QUESTIONNAIRE DESIGN

For this study, a questionnaire design process as depicted in Figure 4.3 was followed. The steps followed are explained in following sub-sections.

4.4.1 Questionnaire development

A questionnaire is a research instrument, which contains a number of questions for collecting information (Malhotra, 1999; Sekaran, 2000). The conversation could take various forms including face-to-face, via the email, or by telephone (Malhotra, 1999). The researcher may decide on the form of conversation depending on what is relevant to his or her study. However, these questions should be easy to understand, be precise, and be relevant to the purpose of the study. To get a good questionnaire, a design process needs to be followed. Questionnaire design involves a number of steps including content and wording, measurement scale, response format, sequence and layout. These steps are expanded below:

Content and wording: Constructing a questionnaire is an important and essential part of the research process. According to Sudman and Bradburn (1982), there are a number of factors that need to be addressed when designing survey questions including the following:

- *Memory*: The researcher should try his/her best to avoid over-taxing the memory of the respondent.
- *Motivation*: The researcher should ensure that questions asked are relevant to the respondent.
- *Communication*: The researcher should also clarify what he/she is asking.
- *Knowledge*: The researcher should only ask for information the respondent is likely to have.

McColl *et al.* (2001) argue that despite the wide range of research and the evidence based on best practice in questionnaire design, relatively little of this can be generalised and so caution should always be exercised. However, whatever the chosen mode of administration is, there are recognised guidelines and principles of question wording, which should be, followed (McColl *et al.,* 2001). In terms of the question content and wording, in this study an effort was made to ensure that the questions were short, comprehensive and simple and to avoid vague, ambiguous, generalised and presumptuous questions (Kassim, 2001).

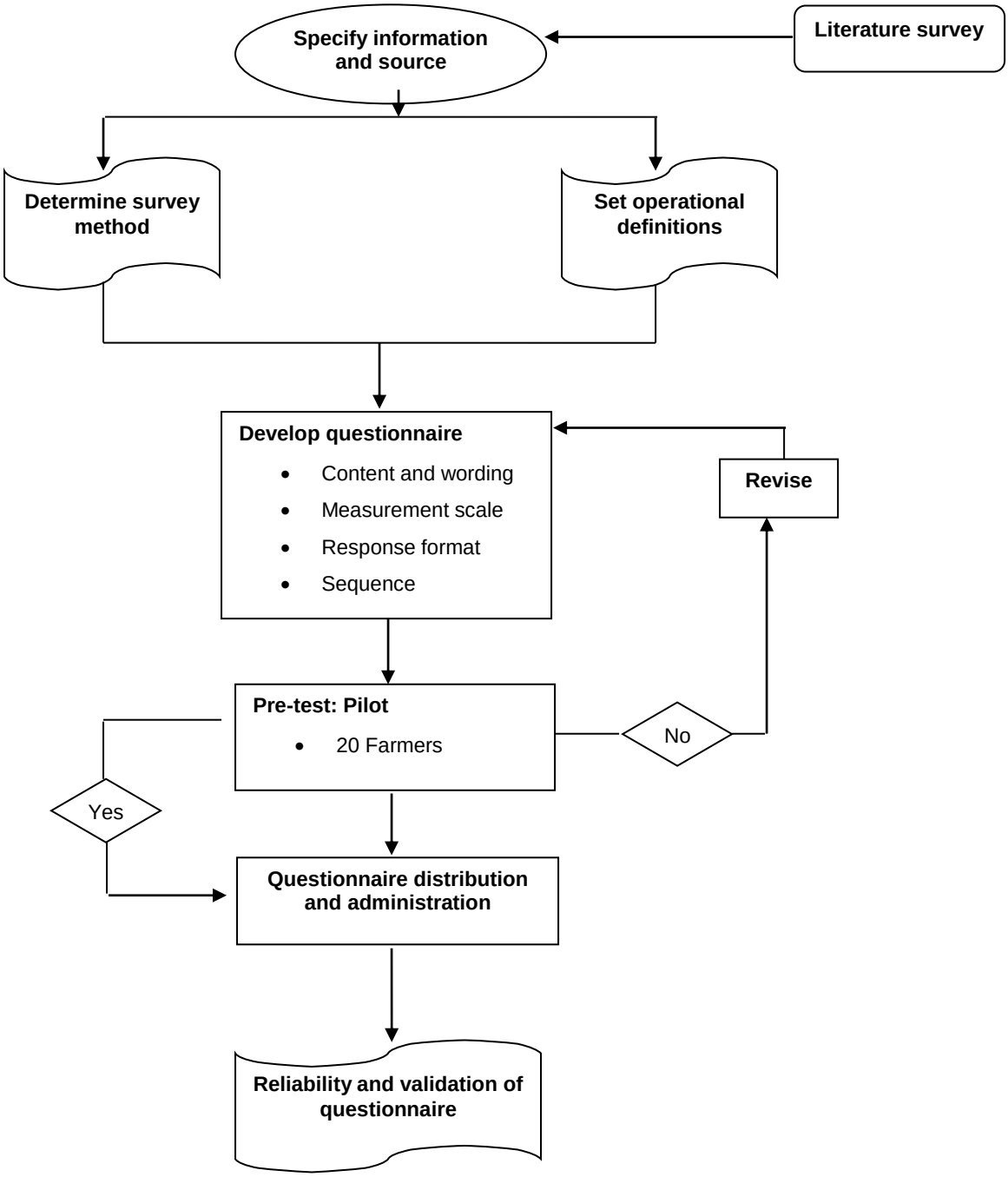

Figure 4.3: Questionnaire design process

Source: Adapted from Kassim (2001), Malhotra (1999) and Churchill (1991) and developed for this study

4.4.2 Survey instrument

Response format: In the questionnaire, two types of response formats can be used: close-ended (dichotomous, multiple choice and Likert scales) and open-ended questions. A closed question gives a choice of alternative answers from which a respondent can choose by ticking or crossing from a list (Oppenheim, 1992). Open-ended questions allow a respondent to be free to give any answers. Although the questions may be asked in an open-ended way, the researcher may give thought to the possible answers and list a number of alternatives on the questionnaire. Closed and open-ended questions can be attitudinal, behavioural (factual) or classification (Oppenheim, 1992). Attitudinal questions entail what people think of something, their image and ratings of things and why they do things. Behavioural questions seek information on what the respondent is, owns or does. They can also include the frequency with which certain actions are carried out and where people live (Oppenheim, 1992). Classification questions seek information that can be used to group respondents to see how different they are from one another and include information such as age, gender, location of household, income and family composition (Schuman *et al.,* 1983). In this study, a combination of close-ended (dichotomous, multiple choice and Likert scales) and open-ended questions were used.

Firstly, the study mainly used multiple choice close-ended (classification) questions which are contained in Sections A, B, C, D and E of the questionnaire (see Appendix A). A few open-ended questions were also used in the study. Secondly, labelled Likert scales (attitudinal) questions were also used to obtain information about the farmer's perception on costs and value of participating in the value chain and these are contained in Sections F and G of the questionnaire (see Appendix A). The format is simple to administer and code (Burns & Bush, 2000) but it also allows the respondents to respond to attitudinal questions in changeable degrees that describe the dimensions being studied (Kinnear *et al.,* 1993; Burns & Bush, 2000; Aaker *et al.,* 2000; Malhotra, 1999). In this study, labelled Likert scales were chosen to measure responses due to the following reasons:

- They produce reliability coefficients with fewer items (Hayes, 1998).
- They are widely used and tested in social sciences and marketing research (Garland, 1991).
- According to Wong (1999) and Aaker *et al.* (2000), labelled Likert scales assist in increasing the spread of variance of responses which ultimately gives a stronger measure of association.
- Burns and Bush (2002), Zikmund (2000) and Wong (1999) argue that they provide a high likelihood responses that accurately reflect response opinions under the study.

For the reasons mentioned above, labelled Likert scales were appropriate for the study to answer questions in Sections F and G (see Appendix A). In terms of the number of scale points, there is no clear rule of thumb indicating what is an ideal number, although a number of scholars suggest that opinions can be captured optimally with a five to seven point scale (Malhotra, 1999; Sekaran, 2000; Aaker *et al.,* 2000). Elmore and Beggs (1975) argued that an increase in scales does not necessary improve the reliability of the ratings, instead it could confuse the respondents. For this study, a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) was used for questions in Sections F and G of the questionnaire.

The second response format used in this study was open-ended questions, but there were very few of these and they were mainly used as follow-up questions. Open-ended implies that a response has been anticipated so that the respondent is asked to choose one or other of the fixed response categories (McColl *et al.,* 2001). The pre-defined answers, which the researcher has built into the question, would have been worked out earlier from qualitative research, by common sense, or by a pilot study (Schuman *et al.,* 1983).

Sequence: The sequencing of a question may affect the way the respondent answers it (Serdula *et al.,* 1995; Schuman *et al.,* 1983). It is important that researchers are aware of the potential effects of the order of questions in self-completion and administered questionnaires (Serdula *et al.,* 1995). McColl *et al.* (2001) argue that questions should be ordered from easy to difficult in the questionnaire. The survey questionnaire was divided into seven sections: Sections A, B, C, D, E, F and G. In this study, the questionnaire started with questions that are not complex and not sensitive. The variables contained in Section A include demographic information, such as gender, age, employment, education level and income level, followed by production and marketing questions. These questions were followed by financing questions and perception (attitudinal) questions on costs and value, which were placed last in the questionnaire.

The response format for these questions was a combination of closed-ended and open-ended questions. Section B of the questionnaire contained financing (demand) information, while Section C contained transaction cost information. The response format for these questions was mainly close-ended questions. Sections F and G contained information on perceived costs and value constructs, and the format for these sections was labelled Likert scale response.

In this study constructs refers to dependent (endogenous) latent variables (cost to participate, functional value and experiential value). Each independent (endogenous) latent variable consists of independent (exogenous) latent variables. Cost to participate is measured by five exogenous latent variables: direct financial costs, economic costs, psychological costs, regulatory and compliance costs as well as social and cultural costs. Functional value is measured by four exogenous latent variables: product upgrading, process upgrading, functional upgrading and

access to finance. Lastly, experiential value is measure by six exogenous latent variables: feel, think, act, relate, return on investment and satisfaction.

4.4.3 Pilot survey (pre-test)

A questionnaire should be pre-tested before it is to collect data. Due to the complexity of the questionnaire design process, it is extremely unlikely that the first draft of a questionnaire will be perfect (McColl *et al.,* 2003). The pre-test (pilot) phase of the questionnaire can assist in highlighting any problems such as extreme length, complexity, missing questions and so on (Bourque & Fielder, 1995). The pilot survey focuses mainly on testing the whole administrative procedure of using the questionnaire using a smaller sample of participants before the main study. In this study, 20 farmers were used during the pilot survey: four farmers were from the Langkloof area of the Eastern Cape, two from the Hex River Valley and 14 from the Ceres area of the Western Cape. These 20 famers were not included in the final sample. The first problem identified with the questionnaire was the length of the questionnaire: it was initially envisaged that the questionnaire would take only 25-30 minutes to complete, however, the time taken to complete each questionnaire was approximately 60 minutes. The second problem was insufficiency (or omissions) in certain questions. These questions were subsequently added to the questionnaire. The third problem was inconsistency of the questions, especially with regard to the perceptions of farmers, and constructs with certain items were then adjusted accordingly. After the modification and finalisation of the questionnaire, a survey was conducted through face-to-face interviews.

4.5 DATA COLLECTION AND PROCEDURE

Procedure of data collection denotes the approach in which data will be collected and this is influenced by how structured or open-ended the research questions are (Bryman, 2012). Typically, the different types of data which can be collected are primary data and secondary data. Primary data refers to data that has never been collected before (Bryman, 2012) while secondary data denotes data that has already been collected (Wild & Diggines, 2013). The process of data collection is determined by the economic feasibility and purpose of the research (Wild & Diggines, 2013). A total of three fieldworkers were used for the collection of data: the main researcher and two other enumerators who were trained in the process of collecting data. Participants were given informed consent forms to read and the interviewer explained the form (see Appendix C). They were given an opportunity to ask any questions for clarity on the process of the interview and when they were clear about the process, they had to sign the forms before the researcher could start the interview. All questions were in English and all the participants were comfortable with English although the majority of them were Afrikaans speaking. The interviews lasted approximately 60 minutes each. The interviews were conducted between February and April 2018 at a time and

place convenient to the interviewees. For farmers, the majority of the interviews took place at their farms.

4.6 DATA ANALYSIS

In order to statistically analyse the demographic profile of the respondents and to obtain descriptive statistics, the Statistical Package for the Social Science (SPSS version 25) was used. To analyse the results of the main objectives of the study, a Partial Least Squares Structural Equation Modelling (PLS-SEM) technique was used. The PLS-SEM technique model consists of a measurement model and a structural model. The measurement model stipulates how the latent variables are measured in terms of the observed variable and designates measurement properties of the observed variable (Diamantopoulos & Siguaw, 2000). The structural equation model postulates causal relationships among the latent variables and defines the causal effects and amount of unexplained variances (Jöreskog & Sörbom, 1984; Diamantopoulos & Siguaw, 2000).

To perform PLS-SEM, Smart PLS software (version 3) was used. Smart PLS is a regression-based tool that originates from path analysis, unlike the analysis of moment structures (AMOS) and LISREL, which are covariance-based techniques.

4.6.1 Analytical framework

This section provide the analytical framework for the study based on the three focus areas of the study. In this study constructs refers to endogenous latent variables (cost to participate, functional value and experiential value). These are endogenous variables because they are determined or influenced by other variables. They are also referred to as latent variables because they cannot be measured directly. “Latent variables are hypothetical constructs that cannot be directly measured.” (MacCallum & Austin, 2000, page 202). Each endogenous latent variable consists of exogenous latent variables. In Structural Equation Modelling each such construct is denoted by multiple measure variables that serve as indicators of the construct (MacCallum & Austin, 2000). A structural equation model, then, is a hypothesised pattern of directional and non-directional linear relationships among a set of measured variables and latent variables.

4.6.1.1 Analytical framework for cost

The conceptual framework provided in Figure 3.6 is translated to the Partial Least Squares Structural Equation Model (PLS-SEM). Structural Equation Modeling (SEM) is a system where causal relationships are modelled between variables.

The PLS-SEM is illustrated as follows:

$$\eta = B\eta + \Gamma\xi + \zeta \quad (4.1)$$

Where: "cost to participate" is the endogenous latent variable (η) and the exogenous latent variables (ξ) are:

Direct financial costs,
Economic costs,
Psychological costs,
Regulatory and compliance costs
Social and cultural costs.

To test the above conceptual framework and model, the following hypotheses have been developed:

CH_11[1]: There is a positive relationship between direct financial costs and cost of participating in the value chain.

CH_12: There is a positive relationship between economic costs and cost of participating in the value chain.

CH_13: There is a positive relationship between psychological costs and cost of participating in the value chain.

CH_14: There is a positive relationship between regulation and compliance costs and cost of participating in the value chain.

CH_15: There is a positive relationship between social and cultural costs and cost of participating in the value chain.

The measurement variables of the cost model are expanded in Table 4.1.

If these costs are higher than the value gained, smallholder farmers are likely to shy away from participation in the value chain and this limits the ability to benefit from value accumulation. However, these costs cannot be considered in isolation, as they need to be weighed against the value smallholder farmer's gain from participating in formal agricultural value chain.

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[1] The hypothesis will be labelled as:
CH for the cost model
EH for the experiential value mode
FH for the functional value model

Table 4.1: Construct measurement variables for the cost model

Research Construct	Measurement variables	Codes	Item descriptions
Direct Financial costs	- Licensing costs - Travel costs - Storage and handling costs - Insurance costs - Audit (financial) fees	DFC1	Participating in the value chain induces/makes me ***pay licensing costs***.
		DFC2	Participating in the value chain induces/ makes me ***pay travel costs***.
		DFC3	Participating in the value chain induces/ makes me ***pay for storage and handling costs***.
		DFC4	Participating in the value chain induces/makes me ***pay insurance costs***.
		DFC5	Participating in the value chain induces/make me ***pay (Financial) audit fees***.
		DFC6	Participating in the value chain induces/makes me ***pay product inspection costs***.
Economic costs	- Effort - Time - Resources - Opportunities - Money	EC1	Participating in the value chain induces/makes me ***pay more for bargaining costs***.
		EC2	Participating in the value chain induces/makes me ***pay agent cost.***
		EC3	Participating in the value chain induces/makes me ***pay for contracts***.
		EC4	Participating in the value chain induces/makes me ***incur more travelling costs***.
		EC5	Participating in the value chain induces/makes me ***pay more for interest*** due to loans acquired or that might be acquired.
Psychological costs	- Stress - Fear - discomfort - Unrelaxed - Risk	PC1	Participating in the value chain makes me ***feel stressed*** due to the demand for issues like compliance, product quality, delivery targets and possibility of losing money.
		PC2	Participating in the value chain makes me ***afraid*** due to commitments and compliance issues.
		PC3	Participating in the value chain puts me ***at risk*** of losing money due to added costs associated with compliance.
		PC4	Participating in the value chain makes me ***feel uncomfortable/unrelaxed*** due to commitments and compliance issues.
Regulatory & compliance costs	- Certification costs - Monitoring costs - Product inspection costs - Compliance audit fees - Storage costs	RCC1	Participating in the value chain induces/makes me ***pay for certification costs***.
		RCC2	Participating in the value chain induces/makes me ***pay for monitoring costs***
		RCC3	Participating in the value chain induces/makes me ***pay for product inspection costs***.
		RCC4	Participating in the value chain induces/makes me ***pay for audit fees***.
		RCC5	Participating in the value chain induces/makes me ***pay for storage costs***.
Social and cultural costs	- Sex status - Religious status - Cultural status - Age - Education level - Economic status	SCC1	Participating in the value chain makes me ***feel restricted due to my sex status***.
		SCC2	Participating in the value chain makes me ***feel restricted due my religious status***.
		SCC3	Participating in the value chain makes me ***feel restricted due my cultural status***.
		SCC4	Participating in the value chain makes me ***feel socially excluded due to my sex status***.
		SCC5	Direct costs, such as Participating in the value chain makes me ***feel socially excluded due to my religious status***.
		SCC6	Participating in the value chain makes me ***feel socially excluded due to my cultural status***.

4.6.1.2 Analytical framework for experiential value

The conceptual framework provided in Figure 3.6 is translated to the following PLS-SEM model containing latent variables as follows:

$$\eta = B\eta + \Gamma\xi + \zeta \tag{4.2}$$

Where: “experiential value” is the endogenous latent variable (η) and exogenous latent variables (ξ) are:

Act experience,
Feel experience,
Think experience,
Relate experience,
Return on investment and
Satisfaction.

To test the above conceptual framework and model, the following six hypotheses have been developed:

- $EH_1$1: There is a positive relationship between act experience and experiential value.
- $EH_1$2: There is a positive relationship between feel experience experiential value.
- $EH_1$3: There is a positive relationship between think experience and experiential value.
- $EH_1$4: There is a positive relationship between relate experience and experiential value.
- $EH_1$5: There is a positive relationship between return on investment and experiential value.
- $EH_1$6: There is a positive relationship between satisfaction and experiential value.

The measurement of experiential value developed in this study is based on emotional, relational and social value features, which are the main components of experiential value and are expanded in Table 4.2.

Table 4.2: Construct measurement variables for experiential value model

Research Construct	Measurement variables	Codes	Item description
Feel	- Comfort - Joyfulness - Positive emotions - Good feeling - Relaxation - Satisfaction	F1	The experience I gained by participating in the value chain make ***me feel comfortable.***
		F2	The experience I gained by participating in the value chain ***gives me joy***.
		F3	The experience I gained by participating in the value chain makes me ***feel positive emotion***.
		F4	The experience I gained by participating in the value chain participating in the value chain makes ***me feel good***.
		F5	The experience I gained by participating in the value chain makes ***me relax***.
		F6	The experience I gained by participating in the value chain makes me ***feel satisfied***.
Think	- Thinking - Curiosity - Interest - Understanding - Knowledge	T1	Participating in the value chain ***stimulate my thinking***.
		T2	The experience I gained by participating in the value chain ***create curiosity***.
		T3	Participating in the value chain stimulate my ***interest to know more***.
		T4	Participating in the value chain deepens my ***knowledge***.
		T5	The experience I gained by participating in the value chain ***creates new interests*.**
		T6	Participating in the value chain ***deepens my understanding***.
Act	- Share experience - Learn more - Share knowledge	A1	Participating in the value chain allows me to ***share experiences with friends and fellow farmers***.
		A2	Participating in the value chain stimulates ***exchange of my experience***.
		A3	Participating in the value chain stimulate continued ***interest in learning more*.**
		A4	Participating in the value chain allows me to ***share my knowledge***.
		A5	Participating in the value chain allows me ***improve my overall farming experience***.
Relate	- New relations - Building new networks - Common interests - Recognition	R1	Participation in the value chain allows/made me to get to ***know new friends***.
		R2	Participation in the value chain allows/made me ***build new networks***
		R3	Participating in the value chain made find people with ***common interest*.**
		R4	Participation in the value chain allows ***me to get recognition***.
RoI	- Value for money - Time value - Effort value - Benefits	RoI1	Participating in the value chain gives ***value for money*.**
		RoI 2	Participating in the value chain makes me ***feel I have received more than what I have paid for***.
		RoI 3	The ***time*** of participating in the value chain are worth for the experience.
		RoI 4	The ***efforts*** of participating in the value chain are worth for the experience.
		RoI 5	The ***benefits*** of participating in the value chain are worth it.
Satisfaction	- Satisfaction - Satisfactory service quality - Satisfactory offerings - Good choice	S1	I am ***satisfied for being part*** of the value chain.
		S2	I am ***satisfied with the services*** I am getting in the value chain.
		S3	Participating in the value chain ***stimulated or challenged me in some way*.**
		S4	Overall, I am totally ***satisfied with experiences I received*** for being part of the value chain.
		S5	***I am glad*** to be part of the value chain.
		S6	***It is an experience*** to be part of the value chain.
		S7	I made a ***right decision*** for choosing to be part of the value chain.

Source: Author's compilation

4.6.1.3 Analytical framework for functional value

The conceptual framework provided in Figure 3.5 in there translated to the following Partial Least Squares Structural Equation model (PLS-SEM) containing latent variables and is shown as follows:

$$\eta = B\eta + \Gamma\xi + \zeta \tag{4.3}$$

Where: “functional value” is the endogenous latent variable (η) and latent exogenous variables are:

Product upgrading (ξ_1),

Process upgrading (ξ_2),

Functional upgrading (ξ_3) and

Access to finance (ξ_4)

To test this conceptual framework the following hypotheses have been developed:

$FH_1$1: There is a positive relationship between access to finance and functional value.

$FH_1$2: There is a positive relationship between functional upgrading and functional value.

$FH_1$3: There is a positive relationship between process upgrading and functional value.

$FH_1$4: There is a positive relationship between product upgrading and functional value.

The measurement variables of the functional value model are expanded in Table 4.3.

Table 4.3: Construct measurement variables for functional value model

Research Construct	Measurement variables	Codes	Item descriptions
Access to Finance	- Access to finance - Access to different financiers - Meet the financing requirements - Access to affordable financing options - Access finance on time	FVAF1	Participating in the value chain ***makes/made it easy to have access to finance***.
		FVAF2	Participating in the value chain ***gives/gave me access to different financiers***.
		FVAF3	Participating in the value chain ***makes/made me meet the financing requirements***.
		FVAF4	Participating in the value chain ***gave me access to affordable financing options***.
		FVAF5	Participating in the value chain ***allowed me to access finance on time***.
Functional upgrading	- New technology - Management skills - Relationships/ new networks - Branding and marketing	FVF1	Participating in the value chain induces/***made me employ new technology on my farm***.
		FVF2	Participating in the value chain induces/***made me improve on my management skills***.
		FVF3	Participating in the value chain induces/***made me form relationships/ new networks***.
		FVF4	Participating in the value chain induces/***made me to have a brand for my products***.
Process Upgrading	- Improved farming practices. - Pest control processes/approach - Marketing strategy - Packaging	FVAF1	Participating in the value chain is improving***/improved my farming practices***.
		FVAF2	Participating in the value chain is increasing/***increased my yields***.
		FVAF3	Participating in the value chain induces me to improve***/ improved my pest control processes/approach***.
		FVAF4	Participating in the value chain induces/***made me have better marketing strategy***.
		FVAF5	Participating in the value chain induces/***made me have better packaging***.
Product upgrading	- New crop varieties - Food safety standards - Production practices - Product(s) quality	FVP1	Participating in the value chain induces/***made me plant new crop varieties***.
		FVP2	Participating in the value chain induces/***made me comply with food safety standards.***
		FVP3	Participating in the value chain induces/***made me improve my production practices***.
		FVP4	Participating in the value chain induces/***made me improve my product(s) quality***.
		FVP5	Participating in the value chain induces/***made me plant new crop varieties***.

Source: Author's compilation

SmartPLS is a regression-based tool that has evolved from path analysis, therefore a PLS path model consists of two elements. The first element is called the measuring model, also referred to as the outer model, and demonstrates the relations between constructs and indicators (Hair *et al.,* 2011). The second element is a structural model, also called the inner model, in which the relations (paths) between the constructs are displayed. The estimation of the model provides empirical measures of the relations between the constructs (structural model) as well as the relationship between the indicators and constructs (measuring models) (Hair *et al.,* 2011). The empirical measures allow comparing the structural models with the theoretically documented reality. Hence, the fitness of the theory to the data can be determined. For PLS-SEM there is no single goodness-of-fit criterion as there is with the Covariance-Based Structural Equation Modelling (CB-SEM) approach. It is therefore important to recognise that the quality of the fitness presents distinct meanings in contexts of PLS-SEM and CB-SEM (Hair *et al.,* 2014).

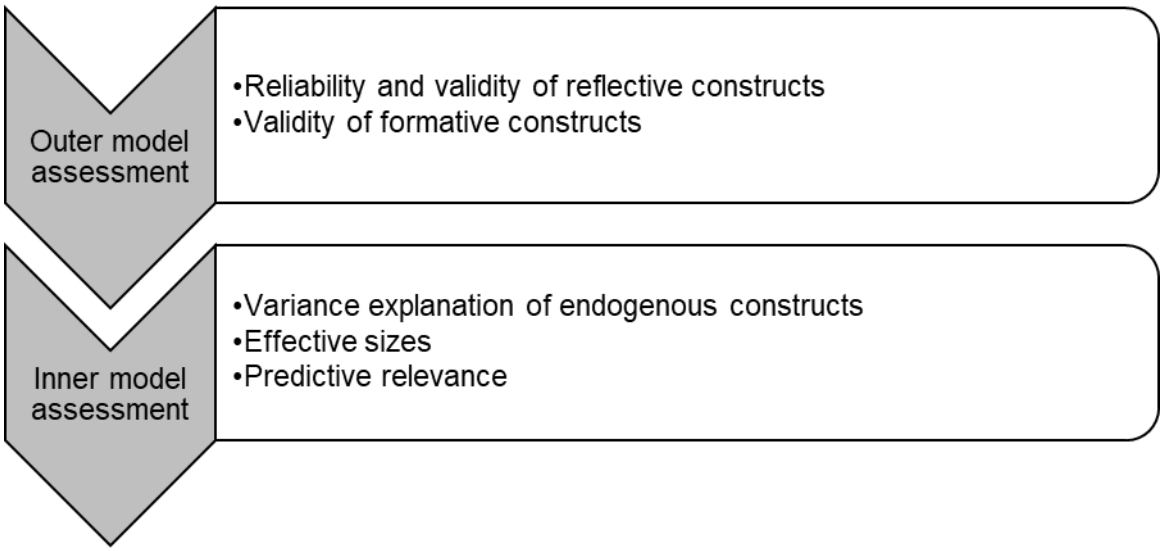

Figure 4.4: A two-step process of PLS path model assessment

Source: Adapted from Henseler *et al.* (2009)

In this respect, the assessment of measurement models, meaning the relationship between the indicators and constructs, involves an indicator reliability test through Cronbach's Alpha (α) and composite reliability (CR) as well as validity, which includes convergent validity and discriminant validity. Convergent validity is tested through exploratory factor analysis (factor loadings) and average variance extracted (AVE), and discriminant validity is tested through cross loadings, Fornell–Larcker criterion or a multitrait-multimethod (MTMM) matrix (Hair *et al.,* 2014).

On the other hand, the assessment of the structural model, which is the relationship between constructs, includes the coefficients of determination (R^2), predictive relevance (Q^2), effect sizes

(f^2) and multicollinearity (Hair *et al.,* 2014). These tests are expanded below and summarised in Table 4.4 and 4.5:

4.6.2 Assessment of measurement models

4.6.2.1 Survey instrument reliability

To ensure stability and consistency of the measurement scales, one of the tests used is known as reliability test. If a scale produces reliable results when reported measurements are made, then it is called reliable (Hair *et al.,* 2003). The instrument cannot be valid unless it is reliable. However, according to Tavakol and Dennik (2011), the reliability of the instrument does not depend to its validity. To test reliability, the most popular approach used is Cronbach's alpha (α) (Malhotra, 1996). According to Hair *et al.* (2003), a value of coefficient alpha which is greater than 0.70 is considered good. However, for exploratory studies, a value of 0.5 is considered acceptable. Alpha (α) was developed by Lee Cronbach (1951) in an attempt to provide a measure of the internal stability and consistence of scales. In this study, a cut off value for Cronbach Alpha was then 0.50 due to that fact that the study is exploratory in nature and is in the early stages of development.

The second popular method used to test reliability of the survey instrument is known as composite reliability (CR). The composite reliability is used to assess if the responses, as whole, are reliable or are truly free from bias. The composite reliability is calculated as follows:

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + (\sum \varepsilon_i)} \tag{4.4}$$

Where, λ is the standardized factor loading for item *i*
ε is the error variance for item *i*.
The error variance (ε) is estimated based on the value of the standardised loading (λ) as:

$$\varepsilon_i = 1 - \lambda_i^2 \tag{4.5}$$

The item r-square value is the variance percentage of item *i,* which is explained by the latent variable. It is estimated based on the value of the standardised loading (λ) as:

$$r^2 = \lambda_i^2 = 1 - \varepsilon_i \tag{4.6}$$

Composite reliability figures between 0.60 and 0.70 are considered suitable in the new area of research, while figures of 0.70 and 0.90 are considered suitable for the other types of research such as confirmatory studies (Hair *et al.,* 2014, Malhotra, 1996). This method is preferred above the Cronbach's alpha as it gives a better estimate of variance shared by the respective constructs in the model. A high value of composite reliably (CR) shows a high level of internal consistency of the measurement scales. As this is an exploratory study, a cut off value of 0.60 was used.

4.6.2.2 Survey instrument validity

According to Malhotra (1996), validity test is used to assess the extent to which differences in observed scale scores show the true differences among the objects on the characteristics being measured. To test the validity of the survey instrument, two distinct approaches, convergent validity and discriminant validity were used.

a) Convergent validity

The first approach is to test for convergent validity. According to Hamid *et al.* (2017), convergent validity assessment "measures the level of correlation of multiple indicators of the same construct that are in agreement. To assess convergent validity two approaches are typically followed: factor analysis (factor loadings) and average variance extracted (AVE). For factor analysis, factor loadings need to be above 0.7 in order to confirm validity (Henseler *et al.,* 2009). "High external loadings in the same construct designate that the associated indicators have a lot in common with the phenomenon the latent construct captures " (Malhotra, 1996). The external loadings of all indicators should be statistically significant. However, Chin (1998) argues that outer loadings with value of 0.5 and 0.6 can also be considered if the research conducted is in the early stages of development. Therefore, standardized values with external loadings superior to 0.5 are expected (Hair *et al.,* 2014, Malhotra, 1996 Bagozzi & Yi, 1998). "Indicators with external loadings between 0.40 and 0.50 should only be eliminated if the procedure entails increased reliability and the composite reliability superior to the suggested minimum value" (Hair *et al.,* 2011, 141). In this study, a cut off value for factor loadings was 0.5 and values below 0.5 were eliminated.

The second approach followed to test convergent validity is average variance extracted (AVE). "The variance extracted is the extent to which a measure is positively correlated with alternative measures of the same construct" (Hair *et al.,* 2014). The definition of AVE for construct ξ_j, is as follows:

$$\text{AVE}\xi_j = \frac{\sum_{k=1}^{K_j} \lambda^2_{jk}}{\sum_{k=1}^{K_j} \lambda^2_{jk} + \Theta_{jk}} \quad (4.7)$$

Where:

K_j is the number of indicators of constructs of ξ_j.

λ_{jk} are the indicator loadings

and Θ_{jk} is the error variance of the k[th] indicator (k=1,…….K_j of construct ξ_j.

When all the indicators are standardised (that is a mean of 0 and variance of 1), equation 1 above can be simplified to:

$$\text{AVE}\xi_j = \frac{1}{K_j} \sum_{k=1}^{K_j} \lambda^2_{jk} \quad (4.8)$$

Average variance extracted (AVE) threshold of 0.5 is considered adequate (Bargozzi, *et al.,* 1992), therefore, when the AVE is bigger than 0.50, it is acknowledged that the model converges to a satisfactory result (Fornell & Larcker, 1981). However, Hulland (1999) and Chin (1988) argued that a value of ≥ 0.40 is recommended for studies with newly developed items scales and close to 0.7 for confirmatory studies.

Average variance extracted (AVE) represents the average amount of variance a constructs explains in its indicator variables relative to the overall variance of its indicators (Henseler *et al*., 2015).

b) Discriminant validity

Discriminant validity test measures the extent to which the measurement constructs are different from one another. This test is viewed to be an important instrumental building block in evaluating the model (Bargozzi *et al.*, 1992, Hair *et al.,* 2010). In other words, each measurement construct has to represent a set of phenomena that are not captured by other measurement construct in the model (Hair *et al.,* 2010). There are two traditional methods used to measure discriminant validity. The first method is the Fornell–Larcker criterion also known as average variance extracted (AVE) vs Shared Variance (SV) analysis. Fornell–Larcker (1981), in their widely cited article on test to

evaluate structural models, suggested that discriminant validity exist if a latent variable accounts for more variance with its associated indicators than it shares with other constructs in the same model. In order to satisfy this requirement, the average variance extracted (AVE) of each construct must be compared with its highest squared correlations with other constructs in the same model.

The AVE therefore is equal to the average squared standardised loadings and is also equivalent to the mean value of the indicator reliability. If r_{ij} is made the correlation coefficient between the construct scores of constructs ξ_j and ξ_j, then the squared inter-construct correlation r^2_{ij} is the population of variance that ξ_j and ξ_j share (SV). The Fornell–Larcker criterion therefore indicates that discriminant validity exist if the following condition holds:

$$\text{AVE}\xi_j => \max r^2_{ij} \qquad \forall i \neq j \tag{4.9}$$

Although the Fornell–Larcker criterion has been widely used since its establishment 33 years ago, it is not without limitations (Henseler *et al.,* 2015). According to Hui and Wold (1982), it is popularly known that variance based SEM methods tend to overestimate indicator loadings (Henseler *et al.,* 2015). Henseler *et al.* (2015) also claims that there is virtually no systematic examination of Fornell–Larcker criterion efficacy for assessing discriminant validity. These limitations calls for alternative criterion. The second method used therefore is the classical MTMM matrix (Campbell & Fiske, 1959). MTMM allows a systematic assessment of discriminant validity to establish if there is construct validity. The requirement for MTMM is that at least two constructs (“multiple traits”) have to come from the same respondents (Henseler *et al*., 2015).

Campbell and Fiske (1959) came up with four types of correlations: out of the four, two are necessary for the assessment of discriminant validity. The heterotrait-monotrait (HTMT) ratio combines these two correlations (Henseler *et al.,* 2015). The HTMT ratio is the average of the correlations of indicators across constructs measuring a different phenomenon, relative to the average of the correlations of indicators within the same construct. The MTMM matrix analysis shows discriminant validity when the monotraite-multimethod correlations are bigger than the MTMM correlations (John & Benet-Martinez, 2000; Campbell & Fiske, 1959). This means that the relationships of the indicators in the same construct are stronger than indicators across constructs measuring different phenomena (Henseler *et al.,* 2015). Because there are two monotraite-multimethod submatrices, the geometric means of their average correlation are taken. Therefore, the HTMT of the construct ξ_i and ξ_j with respectively, K_i and K_j indicators can be shown as follows:

$$\text{HTMT}_{ij} = \underbrace{\frac{1}{K_i K_j}\sum_{k=1}^{K_i}\sum_{h=1}^{K_j} r_{ig,jh}}_{\text{average heterotraite-heteromethod}} \div \underbrace{\left(\frac{2}{K_i(Ki-1)}\cdot\sum_{g=1}^{K_j-1}\sum_{h=g+1}^{K_i} r_{ig,jh} \cdot \frac{2}{K_j(Kj-1)}\cdot\sum_{g=1}^{K_j-1}\sum_{h=g+1}^{K_j} r_{jg,jh}\right)^{\frac{1}{2}}}_{\text{geometric mean of the average monotrait-heteromethod correlation of construct } \xi_j \text{ and the average monotrait-heteromethod correlation of contruct } \xi_j}$$

According to Nunnally (1978) and Netemeyer *et al.* (2003), the HTMT approach is an estimate of the correlation between the constructs ξ_i and ξ_j which parallel the disattenuated construct score correlation. The interpretation of HTMT is straightforward. "If the indicators of the two constructs ξ_i and ξ_j shows an HTMT value that is clearly less than one, the true correlation between the two constructs is most likely different from one, and they should differ" (Henseler *et al*., 2015, p.11). The HTMT is used in two ways in assessing discriminant validity. Firstly, HTMT can be used as a criterion, which involves comparing it to a predetermined threshold. If the value of the HTMT is smaller than this predetermined threshold, one can conclude that there is discriminant validity. In terms of the exact threshold for HTMT, there are different recommendations from the literature. Authors such as Clark and Watson (1995) and Kline (2011) suggest a threshold of 0.85, while others such as Gold *et al.* (2001) and Teo and Lee (2008) suggest a value of 0.90. In this study, notation use for these two thresholds is $\text{HTMT}_{.85}$ and $\text{HTMT}_{.90}$ respectively.

Secondly, HTMT can be used as a statistical test, which is referred to as $\text{HTMT}_{\text{inference}}$. The bootstrap procedure for construction of confidence intervals allows the testing of a null hypothesis H_0: HTMT ≥ 1 against the alternative hypothesis H_1: HTMT < 1. This indicates a lack of discriminant validity if the value is one at a certain confidence interval, i.e. H_0 holds. Otherwise, if the value falls outside the interval's range, the two constructs are empirically distinct (Henseler *et al.,* 2015).

The second popular method for assessing discriminate validity is cross-loadings, which is usually a little more liberal (Henseler *et al.,* 2009). Each indicator loading is expected to be greater that all of its cross-loadings (Chin, 1998). The Fornell–Larcker criterion enables assessment of discriminant validity at construct level while cross-loadings permit discriminant validity at indicator level.

In summary, a reliable and valid reflective measurement model should meet all the criteria as listed in Table 4.4. If these criteria are not met, the researcher may contemplate excluding single

indicators from a specific measurement model and eventually revise the path model (Henseler *et al.,* 2009).

Table 4.4: Summary of the measurement model tests

Test	Criterion	Description
Reliability	Cronbach's alpha (α)	A value of coefficient alpha, which is greater than 0.50 is considered acceptable for exploratory studies (Hair *et al.,* 2003).
	Composite reliability	Figures between 0.60 and 0.70 are considered suitable in exploratory studies, while figures of 0.70 and 0.90 are considered suitable for other types of research such as confirmatory studies.
Validity (Discriminant)	Fornell–Larcker criterion	The AVE of each latent variable should be higher than the squared correlations with all other latent variables.
	The heterotrait-monotrait ratio	Many authors suggest a threshold of 0.85 while other authors suggest a value of 0.90.
	Cross-loadings	Each indicator loading is expected to be greater that all of its cross-loadings.
Validity (Convergent)	Factor analysis (loadings)	Factor loadings need to be above 0.5 in order to confirm validity for exploratory studies.
	Average Variance Extracted (AVE)	An AVE threshold of 0.5 is considered adequate for exploratory studies.

Source: Compiled by Author (2019)

4.6.2.3 Assessment of structural models

Since PLS does not require a normally distributed data (Cohen, 1988), the quality of the structural model can be evaluated by evaluating the R-squared for dependent latent variables, effective size (f^2), predictive relevance (Q^2) and multicollinearity.

a) **Coefficient of determination or R-squared (R^2):** According to Wixom and Watson (2001), R-squared (R^2) measures the percent variation that is explained by the model. As a rough rule of thumb, Hair *et al.* (2014) considered R^2 values of 0.25 as weak, 0.50 moderate, and 0.75 as substantial. However, Sánchez *et al.* (2006) considered (R^2) values of 0.30 as low, between 0.30 and 0.60 as moderate and >.60 as high. Chin (1998) argues that R^2 values of 0.67 are substantial, 0.33 moderate and 0.19 as weak in PLS path models. If certain inner path model structures explain an endogenous latent variable by only few (e.g. one or two) exogenous latent variables, "moderate" R^2 may be accepted (Henseler *et al.,* 2009). However, a "substantial" level would be demonstrated if the endogenous latent variable depends on several exogenous latent variables (Henseler *et al.,* 2009). Lower results display doubts concerning the

theoretical underpinning and show that the model is unable to explain the endogenous latent variables.

b) **Effect size (f^2):** For each effect in the path model, the effect size can be evaluated by means of Cohen's (1988) f^2. "The effect size (f^2) is calculated as the increase in R^2 relative to the proportion of variance of the endogenous latent variable that remains unexplained (Henseler *et al.,* 2009). f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects respectively (Cohen, 1988).

$$f^2 = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}$$

c) **Predictive relevance (Q^2 and q^2):** The model's capability to predict is another assessment of the structural model (Henseler *et al.,* 2009). Stone–Geisser's Q^2 is the predominant measure of predictive relevance (Stone, 1974; Geisser, 1975). It is measured using blindfolding procedures (Tenenhaus *et al.,* 2005). The Stone–Geisser criterion suggests that the model must be able to provide a prediction of the endogenous latent variable's indicators (Henseler *et al.,* 2009). Similar to the approach of the f^2 effect to assess R^2 coefficients, the relative impact of the predictive relevance (q^2) can be obtained by means of a procedure analogue to the calculation of f^2 (Hair *et al.,* 2014):

$$q^2 = \frac{Q^2_{\text{included}} - Q^2_{\text{excluded}}}{1 - Q^2_{\text{included}}}$$

The technique represents a synthesis of function fitting and cross-validation. The prediction of observables or potential observables is of much greater relevance than the estimator of what are often artificial construct-parameters Chin (1998). The blindfolding procedure is only applied to endogenous latent variables that have a reflective measurement model operationalisation. If this value for a certain endogenous latent variable is larger than zero, its explanatory variables provide predictive relevance (Geisser, 1975). In correspondence to the effect-size (f^2) evaluation, the impact of the predictive relevance is assessed by means of the measure q^2. Values of 0.02, 0.15 and 0.35 indicate a small, medium, or large predictive relevance of a certain latent variable, thus explaining the endogenous latent variable under evaluation (Henseler *et al.,* 2009).

d) **Multicollinearity test:** Constructs (formative) need to be evaluated for multicollinearity. Multicollinearity poses a serious problem to formative measurement and could make it difficult to determine the influence of each construct on the endogenous construct (Diamantopoulos &

Winkelhofer, 2001). Multicollinearity can be measured by VIF (Henseler *et al.,* 2009). VIF values higher than 10 show collinearity (Henseler *et al.,* 2009). TV is used to determine the multicollinearity problem. Menard (1995) states that a tolerance of less than 0.20 is cause for concern; a tolerance of less than 0.10 almost definitely shows a serious collinearity problem.

In summary, the structural equation model should meet the criteria as listed in Table 4.5.

Table 4.5: Summary of the PLS structural model tests

Criterion	Description
Coefficient of determination or R-squared (R^2)	R^2 values of 0.30 as low, between 0.30 and 0.60 as moderate and >0.60 as high (Sánchez *et al.,* 2006).
Effect size f^2	$f^2 = (R^2_{included} - R^2_{excluded})/ (1 - R^2_{included})$: values of 0.02, 0.15 and 0.35 can be viewed as a gauge for whether a predictor latent variable has a weak, medium, or large effect at the structural level.
Predictive relevance (Q^2 and q^2)	Q^2 is calculated based on the blindfolding procedure: $Q^2 = 1 – (\sum_D SSE_D)/ (\sum_D SSO_D)$. *D* is the omission distance, SSE is the sum of squares of prediction errors, and SSO is the sum of squares of observations. Q^2 values above zero give evidence that the observed values are well constructed and that the model has predictive relevance, and Q^2 values below zero indicate a lack of predictive relevance. In correspondence to f^2, the relative impact of the structural model on the observed measures for latent dependent variables can be assessed: $q^2 = (Q^2_{included} - Q^2_{excluded}) / (1 - Q^2_{included})$.
Multicollinearity test	Variance inflation factor (VIF) values higher than 10 show collinearity. Tolerance values (TVs) less than 0.20 are cause for concern, a TV less than 0.10 almost certainly indicates a serious collinearity problem.

Source: Adapted from Henseler *et al.* (2009)

If these criteria are not met, the researcher may contemplate excluding single indicators from a specific measurement model and eventually revise the path model (Henseler *et al.,* 2009).

4.6.3 Justification/rationale for using partial Least Squares Structural Equation Modeling

Structural equation modeling (SEM) has become an important statistical tool in social and behavioural sciences (Batinez *et al.,* 2019). SEM has an ability of modelling nomological networks by expressing theoretical concepts through constructs and connecting these constructs via a structural model to study their relationships (Bollen, 1989). Structural equation modeling (SEM) is a flexible method to simultaneously assess constructs of the model and the hypothesised structural relations among variables via a measurement model and structural model analysis (Hair *et al.* 2013; Zhang *et al.* 2017). The Partial Least Squares-Structural Equation Model method is widely used by many researchers as it allows them to estimate complex models with many constructs, indicator variables and structural paths without imposing distributional assumptions on the data

(Hair *et al.,* 2019). More importantly, PLS-SEM is a causal-predictive approach to SEM that emphasizes prediction in estimating statistical models, whose structures are designed to provide causal explanations (Wold, 1982; Sarstedt *et al.,* 2017). The PLS-SEM characteristic of higher statistical power is quite useful for investigative research that examines less developed or still developing theory (Hair et al. 2019). PLS-SEM is suitable with small sample sizes when models comprise many constructs and a large number of items (Fornell and Bookstein, 1982; Willaby *et al.,* 2015; Hair *et al.,* 2017). In this study, the sample size was 101, which is considered small in Structural Equation modelling, but the models had large number of constructs and items. For example, the cost model has 5 constructs with 29 items, the experiential value model has each 36 items and the functional value model has constructs with 18 items. For this reason, PLS-SEM was a suitable technique.

4.6.4 Justification for the use of Smart PLS

Over the years, Smart PLS has emerged as a powerful technique to study causal models, which have multiple constructs and indicators (Chinomona & Surujal, 2012). This technique is able to handle intricate predictive models with small to medium sample sizes. This current study has a relatively small sample size (101) and for this reason, Smart PLS was found to be the best technique to use. Prior research suggests that a sample size of 100 to 200 is usually a good starting point to carry out path modelling (Hoyle, 1995). In this respect, the bootstrapping resampling method was used to test the statistical significance of the relationships within the models. The bootstrapping procedure involved generating 500 subsamples on the same number of observations. Partial Least Squares (PLS) based Structural Equation Models do not assume normality, and hence employ bootstrapping to obtain standard errors for hypothesis testing. Bootstrapping is a nonparametric approach to statistical inference that does not make any distributional assumptions of the parameters like traditional methods. Bootstrapping draws conclusions about the characteristics of a population strictly from the sample at hand, rather than making unrealistic assumptions about the population.

4.7 ETHICAL CONSIDERATIONS

Ethical considerations are one of the most fundamental parts of the research. In this study, respondents were not coerced to respond to the survey. Instead, they were asked to participate in this study of their own free will. They were informed that they had a right to participate on their own and if they were not comfortable with any part of the survey, they could skip that part or they could withdraw from the study altogether. However, they were encouraged to answer all the questions. Cooper and Schindler (2008) argues that participants' perpetual awareness may influence their response behaviour during the interview process and might change responses once they notice that they are being questioned or observed. These authors further explained that participants might

sometimes answer questions they consider socially acceptable (Cooper & Schindler, 2008). Respondents were kindly asked to answer all questions and as honestly as possible according to their perception. However, it should be noted that respondents might have adapted their response behaviour. Although there was a possibility of changes in response behaviour, it could not be established that they changed their response behaviour during the interview process.

The field workers also assured the respondents that there are no correct or incorrect responses and emphasised that their individual answers will be treated very confidentially. From the beginning, the respondents were briefed about the purpose and the benefits of the study. This helped to free the respondents from deception and potential stress that could arise from their participation in the study. Furthermore, the respondents were guaranteed of protection through anonymity and that none of their information would be passed to a third party, and nor would their personal identity be revealed. All this is contained on the consent forms (see Appendices C and D), which were signed by each respondent. The consent forms were approved by the Departmental Ethics Screening Committee of the University of Stellenbosch Business School.

4.8 SUMMARY

This chapter has outlined an overview of the methodology used in the study. The study focused on the deciduous fruit industry value chain in three provinces of South Africa: Western Cape, Eastern Cape and Northern Cape, following a case study approach. The sample in the study consists of smallholder farmers within the South African deciduous industry. The study used a non-probability sampling technique employing purposive and snowballing sampling. In order to statistically analyse the demographic profile of the respondents and to obtain descriptive statistics, the statistical package for social science (SPSS version 25) was used. To analyse the results of the main objectives of the study, a Partial Least Squares Structural Equation Modelling (PLS-SEM) technique was used, and to perform this, Smart PLS software (version 3) was used.

The following chapter will attempt to answer the research questions of this study. The results provided in the chapter the follows research objectives outlined in Chapter 1.

CHAPTER 5
RESULTS AND DISCUSSION

5.1 INTRODUCTION

The purpose of this chapter is to provide statistical analysis on collected data and report the main findings of the study based on the research objectives and various hypothesises generated for each research objective. This chapter will cover the following main topics: profile of respondents/demographics, measurement model (reliability and validity), structural model and main findings. The results of the statistical analysis fulfulled the distinct objectives of the study and is broken into costs, experiential value and functional value for smallholder farmers participating in the deciduous fruit value chain. The first section of this chapter reports on the demographic profile of the respondents.

5.2 DEMOGRAPHIC PROFILE OF THE RESPONDENTS

The respondents were asked to report on their demographic information, which included age, gender, marital status, level of education, academic qualification, income levels and their experience in farming. Table 5.1 summarises the descriptive statistics of the respondents. The respondents were predominantly male (79%), and the majority (44%) of the respondents were in middle adulthood (between 46–55 years of age). More than half the participants (55%) had high school education, followed by post high school education (diploma 21%, bachelor's degree 11% and postgraduate degree 5.0%). The majority of the respondents (70%) were full-time farmers and over 26% (24% employed full time and 3.0% employed part-time) had jobs somewhere outside their farms. Most of the respondents had an income above R4 500 per month. The respondents indicated a high level of farming experience with 90% indicating more than 5 years of experience.

Table 5.1: Sample demographic characteristics (N=101)

Demographic characteristics	Frequency	Percentage
Age		
18 - 25	1	1.0
26 - 35	13	12.9
36 - 45	16	15.8
46 - 55	44	43.6
55+	27	26.7
Total	**101**	**100%**

Gender		
Male	80	79.2
Female	21	20.8
Total	**101**	**100%**
Education level		
Primary School	8	7.9
Matric/High school	56	55.4
Diploma	21	20.8
BTech/Bachelor's Degree	11	10.9
Post graduate Degree	5	5.0
Total	**101**	**100%**
Marital status		
Single	10	9.9
Married	84	83.2
Separated	2	2.0
Widowed	2	2.0
Long-term relationship	3	3.0
Total	**101**	**100**
Experience in farming		
Between 1-3 years	1	1.0
Between 3-5 years	9	8.9
Above 5 years	91	90.1
Total	**101**	**100%**
Personal gross income (Rands per month)		
Less than 1500	18	17.8
1501 - 3000	16	15.8
3001 - 4500	7	6.9
More than 4500	60	59.4
Total	**101**	**100**

The following sections provide the results of the statistical analysis following the three distinct objectives of the study, broken into costs and value (experiential value and functional value) of farmers participating in the deciduous fruit value chain.

5.3 COSTS TO SMALLHOLDER FARMERS PARTICIPATING IN THE DECIDUOUS FRUIT VALUE CHAIN

This section provides results and interpretation of the first objective of the study and resulting hypothesis outlined in Chapters 1 and 2. It starts by providing the assessment results of the measurement model, followed by the assessment results of the structural model, and the discussion of the results.

5.3.1 EVALUATION OF THE MEASUREMENT MODEL (COST MODEL)

In order to test the reliability and validity of the measure model for all specifies constructs, the reflective measure model was assessed in order to justify their inclusion in the path model. The measurement model was assessed for composite reliability, convergent validity (average variance extracted) and discriminant validity as discussed below.

5.3.1.1 Survey instrument reliability (cost model)

To test the instrument reliability, the Cronbach's alpha (α) value was used. The Cronbach's alphas with a threshold above 0.5 is considered acceptable and good for exploratory studies (Hair *et al.,* 2003). The values for the alphas ranged between 0.659 and 0.936 and was thus above the threshold of 0.5. The results of the reliability test are presented in Table 5.2. In this model, the composite reliability (CR) values of the constructs ranged from 0.793 (cost to participate) to 0.937 (psychological costs), which shows that all six constructs were above the 0.6 threshold as suggested by (Hair *et al.,* 2014; Malhotra, 1996). The reliability of the survey instrument was therefore confirmed.

Table 5.2: Reliability and convergent validity analysis (cost model)

Research Construct	Items	Cronbach's alpha	CR Value	AVE Value	Factor Loadings
Cost to participate	CP1	0.659	0.793	0.492	0.686
	CP2				0.792
	CP3				0.600
	CP4				0.714
Direct financial costs	DFC1	0.831	0.877	0.544	0.724
	DFC4				0.801
	DFC5				0.795
	DFC6				0.747
	DFC7				0.714
	DFC8				0.631

Economic costs	EC1	0.837	0.891	0.673	0.847
	EC2				0.817
	EC3				0.875
	EC4				0.735
Psychological costs	PC1	0.911	0.937	0.787	0.916
	PC2				0.886
	PC3				0.843
	PC4				0.903
Regulatory & compliance costs	RCC1	0.899	0.925	0.713	0.819
	RCC2				0.829
	RCC3				0.910
	RCC4				0.844
	RCC5				0.814
Social and cultural costs	SCC1	0.936	0,911	0.673	0.776
	SCC2				0.879
	SCC3				0.915
	SCC5				0.752
	SCC6				0.767

Note: CP = Cost to participate; DFC = Direct financial costs; EC = Economic costs; PC = Psychological costs; RCC = Regulation and compliance costs; SCC = Social and cultural costs.

5.3.1.2 Survey instrument validity (cost model)

a) Convergent validity (cost model)

Firstly, convergent validity was assessed through factor loadings. According to Henseler *et al.* (2009), factor loadings should be above 0.7 in order to confirm validity. However, Chin (1998) argued that factor loadings with a value between 0.5 and 0.6 are acceptable if the research is in the development stages. Because the items scales used in this research are exploratory in nature and in the development stages, a value of 0.5 was accepted based on Chin's (1998) recommendations. All factor loadings that were below 0.5 were then removed from the model and this was carefully handled to ensure that the removal of these items improved the reliability and validity of the model. The following indicators had values below 0.5 and were removed from the model: cost to participate (CP5-CP8), direct financial costs (DFC2 and DFC3), economic costs (EC5 and EC6), and social and cultural costs (SCC 4). As depicted in Table 5.2, all the remaining items were above 0.5 confirming the convergent validity of the model.

Convergent validity was also assessed through AVE. The AVE value of ≥ 0.40 is recommended for studies that have newly developed measurement items and close to 0.7 for confirmatory studies

(Hulland, 1999). This means that the constructs should account for more than 40% of the variance. As indicated in Table 5.2, all the constructs had a value of more than 0.4 and therefore convergent validity was confirmed.

b) Discriminant validity (cost model)

Three commonly used approaches – Fornell–Larcker criterion, Heterotrait-Monotrait (HTMT) ratio and cross loadings – were used to assess discriminant validity.

Firstly, discriminant validity was tested by the Fornell–Larcker criterion, and the results are shown in the correlation matrix in Table 5.3. The diagonal values in the table show the square root of the AVEs and the off-diagonal values show square correlation between constructs. The results indicate that for each pair of the constructs, the AVE square root of each construct is higher than the absolute value of the correlation, which confirms discriminant validity.

Table 5.3: Inter-construct correlation matrix using Fornell–Larcker criterion (cost model)

Research Construct	CP	DFC	EC	PC	RCC	SCC
Cost to participate	**0.701**					
Direct financial costs	0.674	**0.737**				
Economic cost	0.571	0.671	**0.820**			
Psychological cost	0.532	0.332	0.446	**0.887**		
Regulatory and compliance costs	0.633	0.749	0.628	0.361	**0.844**	
Social and cultural costs	0.117	0.098	0.190	0.090	0.077	**0.820**

Note: CP = Cost to participate; DFC = Direct financial costs; EC = Economic costs; PC = Psychological costs; RCC = Regulation and compliance costs; SCC = Social and cultural costs.

Table 5.4 shows the discriminant validity assessment results using HTMT criterion. It can be seen that all the constructs were below the recommended threshold of 0.90 (Gold *et al.,* 2001; Teo and Lee*.,* 2010) and therefore discriminant validity was confirmed. In addition, a new criterion, Heterotrait-Monotrait (HTMT), that was developed by Henseler *et al.* (2015) based on their Monte Carlo Simulation, was used to test for discriminant validity. According to Henseler *et al.* (2015), in order to confirm discriminant validity, the HTMT score should be between confidence interval values -1 and 1. However, in terms of the exact threshold for HTMT, there are different recommendations from the literature. Thresholds of 0.85 (Clark & Watson 1995; Kline, 2011) and 0.90 (Gold *et al.,* 2001; Teo and Lee*,* 2010) are recommended.

Table 5.4: Heterotrait-Monotrait (HTMT) criterion (cost model)

Research Construct	CP	DFC	EC	PC	RCC	SCC
Cost to participate						
Direct financial costs	0.887					
Economic costs	0.787	0.805				
Psychological costs	0.620	0.385	0.506			
Regulatory and compliance costs	0.812	0.855	0.720	0.402		
Social and cultural costs	0.133	0.151	0.134	0.075	0.144	

Note: CP = Cost to participate; DFC = Direct financial costs; EC = Economic costs; PC = Psychological costs; RCC = Regulation and compliance costs; SCC = Social and cultural costs.

Thirdly, cross loadings were used to test for discriminant validity. For cross loadings, each indicator loading is expected to be greater that all of its cross-loadings (Chin, 1998). As depicted in Table 5.5, all measurement items load higher on the construct they measure, indicating discriminant validity of the model.

Table 5.5: Cross-loadings (cost model)

Items	Cost to participate	Direct financial costs	Economic costs	Psychological costs	Regulatory and compliance costs	Social and cultural costs
CP1	**0.686**	0.299	0.398	0.636	0,297	0,149
CP2	**0.792**	0.554	0.367	0.208	0,617	0,057
CP3	**0.600**	0.363	0.499	0.087	0,338	0,131
CP4	**0.714**	0.652	0.391	0.238	0,507	0,012
DFC1	0.482	**0.724**	0.443	0.237	0,481	0,103
DFC4	0.531	**0.801**	0.594	0.152	0,558	0,075
DFC5	0.528	**0.795**	0.417	0.199	0,555	0,085
DFC6	0.576	**0.747**	0.514	0.241	0,714	-0,078
DFC7	0.402	**0.714**	0.557	0.307	0,510	0,218
DFC8	0.428	**0.631**	0.455	0.379	0,456	0,086
EC1	0.491	0.532	**0.847**	0.545	0,495	0,180
EC2	0.509	0.607	**0.817**	0.244	0,606	0,146
EC3	0.474	0.580	**0.875**	0.396	0,503	0,109
EC4	0.386	0.469	**0.735**	0.266	0,442	0,198
PC1	0.511	0.293	0.441	**0.916**	0,336	0,054
PC2	0.396	0.239	0.391	**0.886**	0,330	0,068
PC3	0.535	0.369	0.353	**0.843**	0,307	0,159
PC4	0.411	0.252	0.395	**0.903**	0,307	0,021
RCC1	0.503	0.584	0.487	0.280	**0,819**	0,095
RCC2	0.494	0.531	0.534	0.415	**0,829**	0,061
RCC3	0.586	0.676	0.563	0.267	**0,910**	0,106
RCC4	0.550	0.663	0.465	0.263	**0,844**	0,012

RCC5	0.533	0.693	0.601	0.314	**0,814**	0,049
SCC1	0.017	-0.107	0.011	0.052	-0.138	**0.776**
SCC2	0.071	-0.012	0.064	0.072	-0.069	**0.879**
SCC3	0.094	0.144	0.205	0.074	0.130	**0.915**
SCC5	-0.017	-0.067	-0.001	0.075	-0.171	**0.752**
SCC6	-0.025	-0.026	-0.022	-0.004	-0.076	**0.767**

Note: CP = Cost to participate; FC = Direct financial costs; EC = Economic costs; PC = Psychological costs; RCC = Regulation and compliance costs; SCC = Social and cultural costs.

In conclusion, after the assessment of the measurement model, the developed constructs for our model can be considered reliable and valid. This analysis identifies which constructs describe the cost of participating and can be used to answer the first research question.

With reliability and validity confirmed, the following section looks at the structural component of the model.

5.3.2 EVALUATION OF THE STRUCTURAL MODEL (COST MODEL)

After concluding the assessment for the measurement model, the next phase is to evaluate the structural model. In this respect, the analysis report on the coefficient of determination (R^2), multicollinearity of the constructs, effect size (f^2) and predictive relevance (Q^2).

5.3.2.1 Coefficient of determination *(R^2)*

As Partial Least Squares (PLS) does not require a normally distributed data, it is assessed with R-squared computation for dependent latent variables (Cohen, 1988). The squared multiple correlations (R^2) determine how well the model fits the hypothesised relationship for each dependent construct in the model. In other words, the R-squared (R^2) measures a construct's percent variation that is explained by the model (Wixom & Watson, 2001). Chin (1998) indicated that R^2 values of 0.19, 033 and 0.67 show as weak, moderate and substantial variation respectively. The R-squared (R^2) for this model as depicted in Table 5.6 below is 0.581, therefore moderate. This means that the five constructs (direct financial costs, economic costs, psychological costs, regulatory and compliance costs and social and cultural costs) moderately explain 58.1% variance in cost of participating.

5.3.2.2 Multicollinearity of the constructs

Variance Inflation Factor (VIF) is one method used to test whether a collinearity problem exists and the VIF value should be less than 5. The VIF values ranged between 1.011 and 2.683 which were all less than 5 (Hair *et al.,* 2006), indicating that there is no collinearity problem. Tolerance Value (TV) is also used to test to multicollinearity and the TV values should be more 0.2 (Menard, 1995).

As SmartPLS does not provide for this analysis, another statistical package had to be used. In this case, SPSS version 3 was used to generate the results.All the TV values of all the independent variables were above 0.2, confirming non-existence of multicollinearity.

Table 5.6: Collinearity statistics (cost model)

Research Construct	Variance Inflation Factor	Tolerance value
Cost to participate		
Direct financial costs	2.683	0.76
Economic costs	2.177	0.43
Psychological costs	1.266	0.52
Regulatory and compliance costs	2.466	0.34
Social and cultural costs	1.041	0.97

5.3.2.3 Effect size (f^2)

According to Chin *et al.* (1996), researchers should also report on effective sizes between the variables. In SmartPLS effective sizes are provided for the latent exogenous variables. f^2 coefficients of 0.02, 0.15 and 0.35 show small, medium and large effects respectively (Hair *et al.,* 2014). The results of the effect size (f^2) tests are provided in Table 5.8. The results that economic costs (0.002) and social and cultural costs (0.002) have small effect, while direct financial costs, psychological costs and regulatory and financial costs have medium effect (see Table 5.8).

Table 5.7: Effect size (f^2) (cost model)

Research construct	Cost to participate	Effect
Cost to participate		
Direct financial costs	0.136	Medium
Economic costs	0.002	Small
Psychological costs	0.181	Medium
Regulatory and compliance costs	0.040	Medium
Social and cultural costs	0.002	Small

5.3.2.4 Predictive relevance (Q^2)

In addition to the coefficient of determination (R^2), effective size and multicollinearity, Hair *et al.* (2014) recommend the computation of Stone–Geisser's Q^2 value for measuring the predictive relevance of the model (Geisser, 1975, Stone 1974). The Q^2 value is obtained using a blindfolding procedure within the SmartPLS software (Hair *et al.,* 2014). A Q^2 value larger than zero indicates that the model has a predictive relevance for endogenous latent variables. The results of the

blindfolding procedure indicate a value of 0.329 for the endogenous latent variable "cost to participate" which means that the model has a predictive relevance.

Having made sure that the measurement model and the structural equation model both meet the test criteria, a discussion of the results is provided below.

5.3.3 DISCUSSION (COST MODEL)

Having assessed the structural model, the statistics of the path model are reported. The sizes and significance of the path coefficients that represents the resulting hypothesis were assessed. The results were obtained through the bootstrap procedure with 500 samples of the same size (n=101) at a 95% confidence interval. The results of the path coefficients, t-statistics and p-values are presented in Table 5.9 and are graphically represented in Figure 5.1. The study used one-tailed test and corresponding *p*-values for statistical inferences following the guidelines as suggested by Roldán and Sánchez-Franco (2012). These authors recommend one-tailed test if the coefficient is assumed to have s sign of positive or negative, which should be reflected in the hypothesis that refers to the corresponding association (Kock, 2015).

This first objective of the study is to determine what constitutes the overall cost to smallholder farmers, which may influence their participation in the deciduous fruit value chain. Five exogenous latent variables (direct financial costs, economic costs, psychological costs, regulatory and compliance costs, and social and cultural costs) were hypothesised to positively influence one endogenous latent variable, cost to participate in the value chain. The path coefficients of the model are all positive, indicating that the direction of the relationship among the constructs as suggested in the hypothesised development of this research is supported, although not all are significant.

Table 5.8: Results of the structural model analysis (cost model)

Hypothesis	Suggested effect	Path coefficients	t-values	P-value	Results
Direct financial costs ⟶ Cost to participate ($CH_1$1)	+	0.391	4.029	0.000	Accept
Economic costs ⟶ Cost to participate ($CH_1$2)	+	0.039	0.351	0.725	Reject
Psychological costs ⟶ Cost to participate ($CH_1$3)	+	0.310	3.046	0.002	Accept
Regulatory and compliance costs ⟶ Cost to participate ($CH_1$4)	+	0.202	2.110	0.035	Accept
Social and cultural costs ⟶ Cost to participate ($CH_1$5)	+	0.028	0.309	0.757	Reject

Note: P<0.05, t >1.96

The outcome of the model indicates that direct financial costs have a positive and significant relationship with cost to participate (β = 0.391, t = 4.029, p = 0.000), and psychological costs have a positive and significant relationship with cost to participate (β = 0.310 t = 3.046 p = 0.002).

Regulatory and compliance costs have a positive and significant relationship with cost to participate (β = 0.202, t = 2.110, p = 0.035). Therefore, hypotheses $CH_1$1, $CH_1$3 and $CH_1$4 are supported.

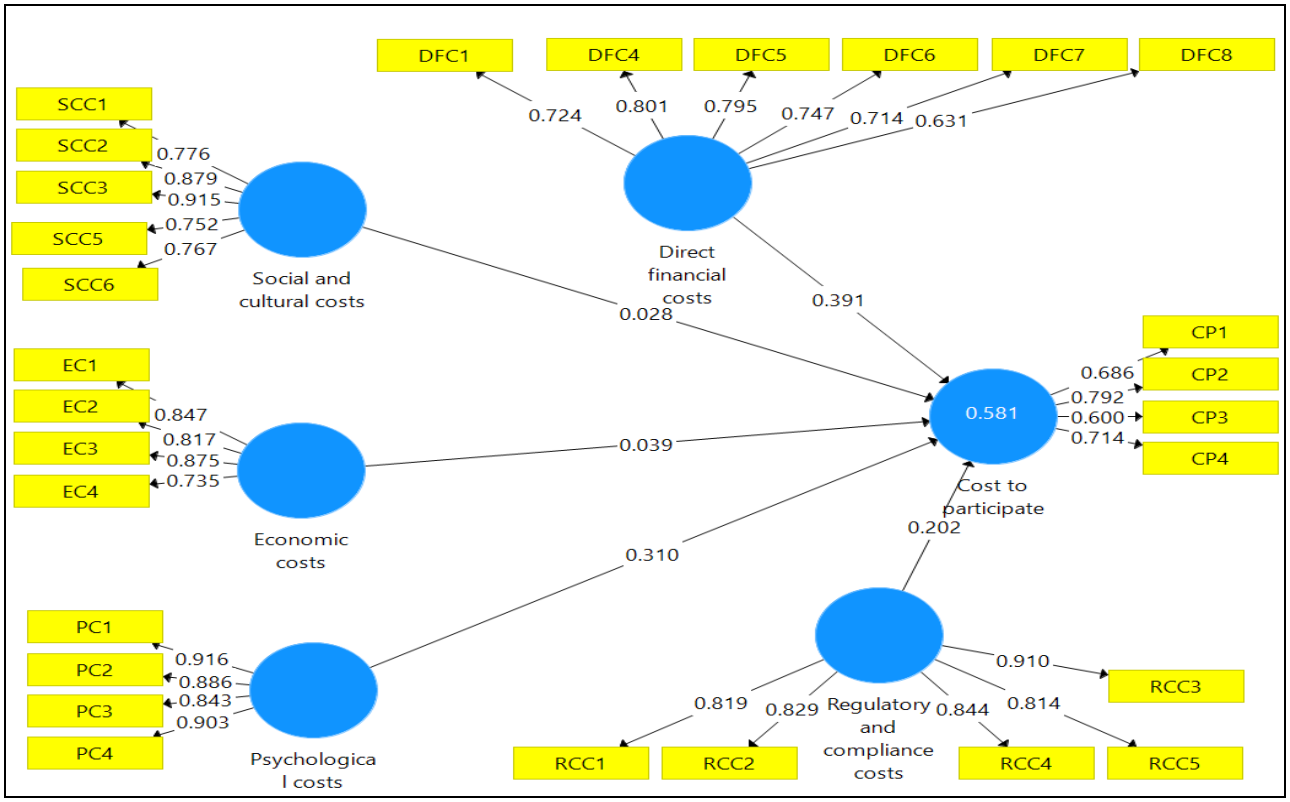

Figure 5.1: PLS-SEM path model using PLS algorithm (cost model)

However, the outcome of the research model also indicates that although there is a positive relationship with economic costs and cost to participate (β = 0.039, t = 0.351, p = 0.725) as well as social and cultural costs (β = 0.028, t = 0.309 p = 0.757), their relationship is not significant, therefore hypotheses $CH_1$2 and $CH_1$5 are not supported.

The findings supported $CH_1$1, indicating that the cost to participate is influenced by direct financial costs such as licensing fees, travel and communications, product inspection and audit fees, storage and handling costs and legal fees. This finding supports the study conducted by Jaffe and Morton (1995a) which concluded that direct financial costs for farmers take tangible forms and include licensing fees, travel and communications, product inspection and audit fees, storage and handling costs and legal fees, and these costs affect participation of smallholder farmers into high value chains.

$CH_1$2 is further supported, which revealed that there is a positive and significant relationship between psychological costs and cost to participate in the value chain. Fear associated with compliance issues, stress due to demand for good quality, delivery times and inability to relax due

to risk of losing money as a result of added costs associated with compliance are some of the psychological costs contributed to the overall cost to participate. All of these constitute psychological costs that farmers experience as sacrifices when being part of the value chain.

CH_14 is also supported which indicates that regulatory and compliance costs have a positive and significant relationship with cost to participate in the value chain. This means that costs associated with certification, monitoring, inspection and storage contribute to the costs to participate in the value chain. This finding supported studies done by Goetz (1992), Jaffe (1995), Key *et al.* (2000) and Pingali *et al.* (2015) which indicated that farmers incur regulatory and compliance costs due to standards required in terms of quality, size and delivery terms. These findings also support the study done by Swinnen *et al.* (2013) which indicated that compliance and standards constitute high certification costs for smallholder farmers and high monitoring costs for both farmers and buyers.

The study therefore summarises that these constructs have a direct effect on the cost to participate in the agricultural value chain, although some of the relationships were not significant.

5.4 EXPERIENTIAL VALUE FOR SMALLHOLDER FARMERS PARTCIPATING IN THE VALUE CHAIN

This section provides results of the second objective of the study and resulting hypotheses outlined in Chapters 1 and 2. We start by providing the results of the measurement model, followed by the structural model and the discussion of the results.

5.4.1 EVALUATION OF THE MEASUREMENT MODEL (EXPERIENTIAL VALUE)

Testing the measurement model entails following two separate phases: testing the survey instrument reliability and testing the survey instrument validity. Both these tests are discussed in the two sub-sections below.

5.4.1.1 Survey instrument reliability (experiential value model)

To test reliability, firstly the study used Cronbach's Alpha (α). A value of coefficient alpha, which is greater than 0.50 is considered acceptable (Hair *et al.*, 2003; Bagozzi &Yi, 1998). The results provided in Table 5.9 indicate Cronbach alpha (α) for all five constructs measuring the experiential value for farmers participating in the value chain.

The values were all above 0.5 and thus above the recommended threshold of 0.5 for exploratory studies as recommended by Hair *et al.* (2003). These results therefore indicated that the measurement scales of all the constructs were stable to measure the research constructs.

Table 5.9: Reliability and convergent validity analysis (experiential value model)

Research Construct	Items	Cronbach's alpha	CR Value	AVE Value	Factor Loadings
Experiential value	EV1	0.628	0.793	0.564	0.680
	EV2				0.698
	EV3				0.861
Feel experience	F1	0.662	0.783	0.483	0.842
	F2				0.582
	F3				0.780
	F4				0.528
Relate experience	R1	0.692	0.805	0.511	0.661
	R2				0.650
	R3				0.710
	R4				0.824
Return on investment	RoI1	0.636	0.770	0.402	0.554
	RoI2				0.660
	Ro13				0.715
	Ro14				0.617
	Ro15				0.614
Satisfaction	SA1	0.583	0.762	0.446	0.760
	SA2				0.633
	SA4				0.654
	SA6				0.615
Think experience	T1	0.720	0.826	0.545	0.798
	T2				0.759
	T3				0.735
	T5				0.653

Note: EV = Experiential Value; F = Feel; R = Relate; RoI = Return on Investment; SA = Satisfaction, T = Think

To test reliability of the survey instrument, composite reliability (CR) test was used. A high value of CR shows a high level of internal consistency of the measurement scales. For exploratory studies, a value between 0.6 and 0.70 is considered suitable (Bagozzi & Yi, 1998; Hair *et al.,* 2014; Malhotra, 1996). All CR values were above the recommended threshold of 0.6 (see Table 5.9 above) as recommended by Hair *et al.* (2014) and Bagozzi and Yi (1998), and the results therefore confirm the reliability of the survey instrument used in the study. The survey instrument was then further assessed for convergent and discriminant validity and these are discussed below.

5.4.1.2 Survey instrument validity (experiential value model)

a) Convergent validity

Factor loadings above 0.5 were kept and loadings below 0.5 were removed from the model and this was done if the removal of the loadings improved the validity of the model. The following items

had factor loadings below 0.5 and were removed: experiential value (EV1), Feel experience (F5 and F6), Satisfaction (S3, S5 and S7) and Think experience (T4 and T6). As indicated in Table 5.9, all factor loadings were above the 0.5 threshold as recommended by Chin (1998).

Convergent validity was also assessed by examining the AVE for each factor (Fornell and Larcker, 1981). Results in Table 5.9 indicated that all the AVE values for all the constructs exceeded 0.4, indicating that there is discriminate validity of the constructs.

b) Discriminant validity

In this model, discriminant validity was assessed using the Fornell–Larcker criterion. The pair-wise correlations between factors obtained were compared with the variance extracted estimates for the constructs making up each possible pair (Fornell & Larcker, 1981). The diagonal elements are the square root of the AVE score for each construct (Chin, 1998). The square root of the AVE for each construct was greater than its correlations with the other constructs, therefore discriminant validity was confirmed (see Table 5.10).

Table 5.10: Inter-construct correlation matrix using Fornell–Larcker criterion (experiential value model)

Research Construct	EV	F	R	RoI	S	T
Experiential Value (EV)	**0.751**[a]					
Feel (F)	0.651[b]	**0.696**				
Relate (R)	0.509	0.620	**0.715**			
Return on Investment (RoI)	0.432	0.545	0.464	**0.634**		
Satisfaction (S)	0.541	0.542	0.460	0.477	**0.746**	
Think (T)	0.598	0.693	0.499	0.431	0.351	**0.738**

Note: EV = Experiential Value; F = Feel; R = Relate; RoI = Return on Investment; SA = Satisfaction, T = Think
[a] Square root of AVE are on the diagonal.
[b] Squared correlations are below the diagonal

The second method used to test discriminant validity was the Heterotrait–Monotrait (HTMT) criterion and the results are depicted in Table 5.11. If the value of the HTMT is smaller than the predetermined threshold, one can conclude that there is discriminant validity. According to the results as shown in Table 5.11, all constructs have an HTMT value below 0.90 except one (Think experience) and therefore discriminant validity was confirmed.

Table 5.11: Heterotrait–Monotrait (HTMT) criterion (experiential value model)

Research Construct	EV	F	R	RoI	S	T
Experiential Value (EV)						
Feel (F)	0.862					
Relate (R)	0.724	0.883				
Return on Investment (RoI)	0.626	0.839	0.692			
Satisfaction (S)	0.757	0.850	0.695	0.792		
Think (T)	0.842	**0.991**	0.690	0.606	0.679	

Note: EV = Experiential Value; F = Feel; R = Relate; RoI = Return on Investment; SA = Satisfaction, T = Think

Thirdly, cross loadings were used to test the discriminant validity of the model and the results are depicted in Table 5.12. As expected, all indicators were greater than all cross loadings and therefore discriminant validity was confirmed.

Table 5.12: Cross loadings (experiential value model)

Items	Experiential value	Feel experience	Relate experience	Return on investment	Satisfaction	Think experience
EV2	**0.680**	0.445	0.362	0.262	0.159	0.413
EV3	**0.698**	0.368	0.338	0.221	0.190	0.319
EV4	**0.861**	0.605	0.438	0.433	0.692	0.563
F1	0.642	**0.842**	0.554	0.401	0.482	0.593
F2	0.190	**0.582**	0.427	0.365	0330	0.456
F3	0.496	**0.780**	0.385	0.419	0.416	0.503
F4	0.278	**0.528**	0.385	0.399	0.229	0.379
R1	0.259	0.392	**0.661**	0.239	0.261	0.319
R2	0.252	0.307	**0.650**	0.274	0.284	0.242
R3	0.429	0.475	**0.710**	0.303	0285	0.410
R4	0.445	0.543	**0.824**	0.464	0.452	0.411
Ro13	0.381	0.428	0.395	**0.715**	0.418	0.389
Ro14	0.261	0.330	0.161	**0.617**	0.236	0.203
Ro15	0.213	0.228	0.247	**0.614**	0.298	0.225
RoI1	0.243	0.346	0.261	**0.554**	0.141	0.270
RoI2	0.210	0.355	0.382	**0.660**	0.383	0.221
SA1	0.413	0.469	0.371	0.360	**0.760**	0.242
SA2	0.339	0.300	0.316	0.282	**0.633**	0.276
SA4	0.333	0.343	0.214	0.406	**0.654**	0.366
SA6	0.355	0.319	0.315	0.226	**0.615**	0.304
T1	0.510	0.551	0.486	0.367	0.410	**0.798**
T2	0.404	0.430	0.347	0.275	0.304	**0.759**
T3	0.438	0.544	0.292	0.258	0.294	**0.735**
T5	0.401	0.513	0.328	0.369	0.270	**0.653**

Note: EV = Experiential Value; F = Feel; R = Relate; RoI = Return on Investment; SA = Satisfaction, T = Think

After the confirmation of the instrument reliability and validity, a structural model was tested and the results are given in the following section.

5.4.2 EVALUATION OF THE STRUCTURAL MODEL (EXPERIENTIAL VALUE)

The model met all the conditions of internal consistency by testing and confirming reliability and validity (convergent and discriminant validity), and the next step was to assess the structural (inner) model. The coefficient of determination (R^2), multicollinearity of the constructs, effect size (f^2) and predictive relevance (Q^2) of this model were assessed and are reported in the following sub-sections.

5.4.2.1 Coefficient of determination *(R^2)*

R^2 means the degree of explanation of the variance in the dependent (endogenous latent variable): in the case of this model, experiential value. This means that our exogenous latent variables (feel experience, relate experience, think experience, return on investment and satisfaction moderately explain 51.3% of the variance in our endogenous latent variable (experiential value).

5.4.2.2 Multicollinearity of the constructs

The results of the collinearity statistics are provided in Table 5.13. Variance Inflation Factor (VIF) values ranged between 1.557 and 2.704 and less than 5. Tolerance Values (TV) ranged between 0.55 and 0.78 which were all more than 0.10: these results indicated that there is no multicollinearity problem among the independent variables (feel experience, relate experience, and return on investment, satisfaction and think experience) in this model.

Table 5.13: Collinearity statistics (experiential value model)

Research Construct	Variance Inflation Factor	Tolerance Value
Experiential Value		
Feel experience	2.704	0.66
Relate experience	1.740	0.63
Return on Investment	1.562	0.70
Satisfaction	1.557	0.78
Think experience	1.973	0.55

5.4.2.3 Effect size (f^2)

Effective sizes of all exogenous latent variables results are provided in Table 5.14. Considering that f^2 coefficients of 0.02, 0.15 and 0.35 shows small, medium and large effect respectively (Hair *et al.,* 2014), return on investment had a weak effect while the other four variables (feel experience, relate experience, satisfaction and think experience) had a moderate effect. Return on investment was found to be insignificant as explained in Section 5.4.3.

Table 5.14: Effect size (f^2) (experiential value model)

Research construct	Experiential value
Experiential Value	
Feel experience	0.066
Relate experience	0.011
Return on Investment	0.000
Satisfaction	0.067
Think experience	0.060

5.4.2.4 Predictive relevance (Q^2)

The model was also tested for predictive relevance and the value obtained through the blindfolding procedure is 0.214, which is larger than zero. This implies that the model has predictive relevance for the endogenous latent variable experiential value.

The measurement model and the structural equation model meet the test criteria and the results are discussed in Section 5.4.3.

5.4.3 DISCUSSION (EXPERIENTIAL VALUE)

In Partial Least Squares (PLS) methodology, structural models and hypotheses are tested by calculating path Beta coefficients (β) (Hair *et al.,* 2006). PLS generates path coefficients for the relationships among the constructs, which are obtained through the bootstrap procedure. In this study we used a bootstrap procedure with 500 samples of the same size (n=101) at 95%.

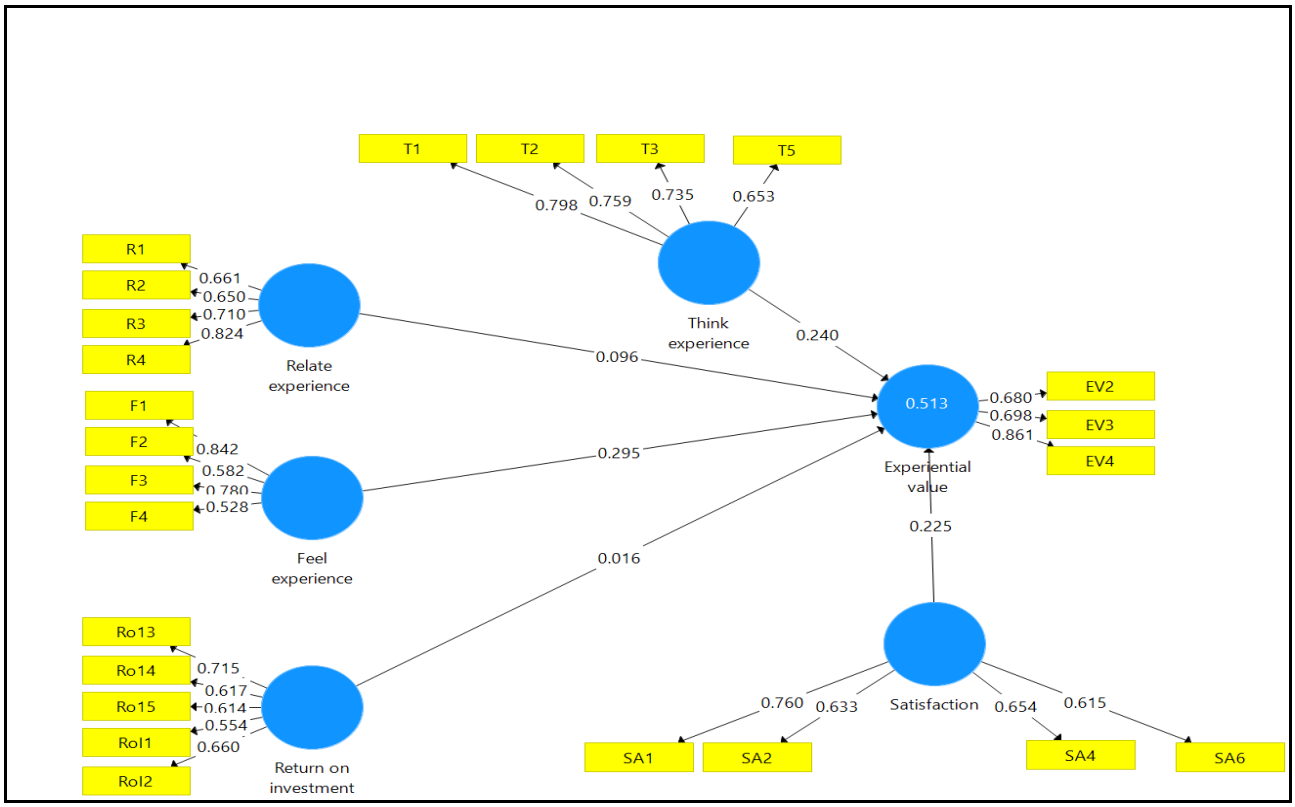

Figure 5.2: PLS-SEM path model using PLS algorithm (experiential value model)

The study hypotheses, which are demonstrated in Table 5.15, and their corresponding paths in Figure 5.2, could be determined by examining the directionality of the path coefficients (whether negative or positive) and the significance of the t-values and p-values. Chin (1998) argued that the standardised path coefficients should be at least 0.2 and preferably more than 0.3. The results indicate that the coefficient for relate experience and return on investment were below 0.2. These constructs were therefore found to have a small effect on the model and are further found to be insignificant as depicted in Table 5.15. Five exogenous latent variables (act experience, feel experience, relate experience, return on investment, satisfaction and think experience) were hypothesised to positively influence experiential value to participate in the value chain. The path coefficients of the constructs are all positive, indicating that the direction of the relationship among the constructs as suggested in the hypothesised development of this research is supported, although not all are significant.

The following constructs have a positive and significant relationship with experiential value: feel experience (β = 0.295, p < 0.037, t = 2.091), satisfaction (β = 0.225, p < 0.002, t = 3.053), think experience (β = 0.240, p < 0.037, t = 2.088), therefore $EH_1$1, $EH_1$4 and $EH_1$5 are supported (see Table 5.15). However, the following hypotheses have a positive but insignificant relationship with experiential value, relate experience (β = 0.096, p < 0.350, t = 0.935) and return on investment (β = 0.016, p < 0.854, t = 0.185).

Table 5.15: Results of the structural equation model analysis (experiential value model)

Research Construct	Suggested Effect	Path coefficients	t-values	P-value	Results
Feel experience → Experiential value ($EH_1$1)	+	0.295	2.091	0.037	Accept
Relate experience → Experiential value ($EH_1$2)	+	0.096	0.935	0.350	Reject
Return on investment → Experiential value ($EH_1$3)	+	0.016	0.185	0.854	Reject
Satisfaction → Experiential value ($EH_1$4)	+	0.225	3.053	0.002	Accept
Think experience → Experiential value ($EH_1$5)	+	0.240	2.088	0.037	Accept

Note: $P<0.05$, $t>1.96$

The study therefore revealed that feel experience, satisfaction and think experience emerged as the distinct dimensions of experiential value for smallholder farmers participating in the deciduous fruit industry. The findings therefore support hypotheses $EH_1$1, $EH_1$4 and $EH_1$5. As depicted in the literature, feel experience is reflected when customers seek comfort, joy, positive emotion and good feeling (Schmitt, 1999; Parasuraman *et al.,* 1988; Sweeney & Soutar, 2001). The items measuring feel experience proposed in this study reinforced that smallholder farmers participating in the value chain give value to emotional and inner messages which participation delivers to them. Thus, based on the present study, feel value may be interpreted as the value smallholder farmers derive from an experience based on comfort, joy, positive emotion and good feeling. Satisfaction may be derived from an experience, which serves as a means to provide farmers with a sense of satisfactory service quality, satisfactory offerings and good choice (Parasuraman *et al.,* 1988).

Based on the findings of the study, satisfaction can be conceptualised as the value that farmers derive from satisfaction in terms of quality of the service and other offerings within the value chain. Think experience is attained when businesses make their customers think, understand, and feel knowledgeable and curious (Schmitt, 1999). Based on the findings of the present study, it may thus be inferred that think experience is derived by farmers when participating in the value chain makes them think, knowledgeable, understand and feel curious. The findings support the studies done by Maghnati et *al.* (2012) in the smartphone industry, which revealed that feel and think experience have a positive and significant relationship with experiential value. Overall, these three constructs – feel experience, satisfaction and think experience – constitute a distinct measure of experiential value for smallholder farmers participating in the value chain.

As argued in Chapter 2, farmers derived experiential value from participating in the value chain, and the current section indeed revealed that farmers derive experiential value from participation. It is also argued that smallholder farmers derive functional value from participation in the value chain.

The following section provides results and discussion on the functional value derived by farmers from participating in the value chain.

5.5 FUNCTIONAL VALUE FOR SMALLHOLDER FARMERS PARTCIPATING IN THE VALUE CHAIN

This section provides the results of the functional value for farmers participating in the deciduous fruit value chain. It follows the same approach as provided in Sections 5.3 and 5.4 above. The measurement models were estimated prior to the analysis of the structural model using the two-step approach recommended by Anderson and Gerbing (1988).

5.5.1 EVALUATION OF THE MEASUREMENT MODEL (FUNCTIONAL VALUE)

5.5.1.1 Survey instrument reliability (functional value)

In order to assess the reliability of the constructs, Cronbach‘s alphas and composite reliability were evaluated (see Table 5.16) to ensure the consistency of the constructs is identified. Cronbach’s alphas with a range of 0.50 are considered acceptable and good (Hair *et al.,* 2003). Cronbach‘s alphas of all variables exceeded 0.50 and fulfilled the acceptable level requirements (Hair *et al.,* 2006). The composite reliabilities of the constructs varied from 0.747 (functional upgrading) to 0.866 (functional value), which means that all variables exceeded the threshold level of 0.60 (Hair *et al.,* 2014, Malhotra, 1996). The observed variables representing measured variables have internal consistency and the reliability of the measurement scales used in the model was trustworthy.

Table 5.16: Reliability and convergent validity analysis (functional value model)

Research Construct	Items	Cronbach’s alpha	CR Value	AVE Value	Factor Loadings
Access to Finance	FVAF1	0.707	0.812	0.469	0.714
	FVAF2				0.853
	FVAF3				0.652
	FVAF4				0.613
	FVAF5				0.555
Functional value	FV2	0.809	0.886	0.722	0.605
	FV3				0.561
	FV4				0.704
	FV5				0.731
Functional upgrading	FVF1	0.578	0.747	0.428	0.917
	FVF2				0.648
	FVF3				0.828

Process Upgrading	FVPr1	0.675	0.789	0.432	0.789
	FVAPr2				0.630
	FVAPr3				0.567
	FVPr4				0.633
	FVPr5				0.645
Product upgrading	FVP2	0.717	0.845	0.649	0.917
	FVP3				0.648
	FVP4				0.828

Note: FV = Functional value; FVAF = Access to Finance; FVF = Functional Upgrading; FVP = Product Upgrading; FVPr = Product Upgrading.

5.5.1.2 Survey instrument validity (functional value)

In addition to reliability assessments, an analysis of measurement instrument validity was conducted. The results are shown in Table 5.16 and all the AVE values for all the constructs exceeded 0.4, indicating that there is convergent validity amongst the construct, which means that at least 40 percent of measurement variance was captured by the constructs (Chin, 1998) and therefore validity was confirmed.

Table 5.17: Cross loadings (functional value model)

Items	Functional Value	Access to finance	Functional Upgrading	Product Upgrading	Process upgrading
FV2	**0.605**	0.144	0.319	0.355	0.377
FV3	**0.561**	0.090	0.422	0.175	0.293
FV4	**0.704**	0.311	0.478	0.249	0.382
FV5	**0.731**	0.704	0.273	0.308	0.283
FVAF1	0.419	**0.714**	0244	0.033	0.211
FVAF2	0.453	**0.853**	0.370	0.083	0.233
FVAF3	0.374	**0.652**	0.287	0.119	0.198
FVAF4	0.389	**0.613**	0.209	0.221	0.178
FVAF5	0.273	**0.555**	0.033	0.075	-0.133
FVF1	0.483	0.425	**0.804**	0.239	0.411
FVF2	0.512	0.204	**0.889**	0.347	0.553
FVF3	0.359	0.273	**0.855**	0.204	0.490
FVP2	0.360	0.142	0.266	**0.917**	0.351
FVP3	0.293	0.196	0.125	**0.648**	0.241
FVP4	0.351	0.045	0.358	**0.828**	0.372
FVPr1	0.457	0.147	0.472	0.399	**0.789**
FVPr2	0.269	0.303	0.411	0.409	**0630**
FVPr3	0.203	0.104	0.396	0.212	**0.567**
FVPr4	0.279	0.022	0.314	0.182	**0.633**
FVPr5	0.338	0.182	0.297	0.100	**0.645**

Note: FV = Functional value; FVAF = Access to Finance; FVF = Functional Upgrading; FVP = Product Upgrading; FVPr = Product Upgrading.

The validity of the survey instrument was also tested using the discriminant validity method provided by Fornell and Larcker (1981). Discriminant validity is confirmed if the diagonal values are higher than the off-diagonal values in the corresponding rows and columns. In this model, the square root of the AVE for each construct was greater than its correlation with the other constructs, therefore discriminant validity was confirmed (see Table 5.18).

Table 5.18: Inter-construct correlation matrix using Fornell–Larcker criterion (functional value model)

Research Construct	FVAF	FVF	FV	FVPr	FVP
Access to finance	**0,685**				
Functional upgrading	0,354	**0.850**			
Functional value	0.566	0.543	**0.654**		
Process upgrading	0.220	0.572	0.495	**0.657**	
Product upgrading	0.153	0.319	0.418	0.404	**0.806**

Note: FV = Functional value; FVAF = Access to Finance; FVF = Functional Upgrading; FVP = Product Upgrading; FVPr = Product Upgrading.

Table 5.19: Heterotrait-Monotrait (HTMT) criterion (functional value model)

Research Construct	FV	FVAF	FVF	FVP	FVPr
Access to Finance					
Functional upgrading	0.443				
Functional value	0.748	0.801			
Process Upgrading	0.450	0.774	0.761		
Product Upgrading	0.238	0.399	0.657	0.564	

Note: FV = Functional value; FVAF = Access to Finance; FVF = Functional Upgrading; FVP = Product Upgrading; FVPr = Product Upgrading.

The results above for instrument reliability and validity indicate that the first order reflective measures are valid and good to work with and support the appropriateness of all items as good indicators for their respective constructs. According to Henseler *et al.* (2015), if the specified outer (measurement) model does not meet the minimum required properties of acceptable reliability and validity, the inner (structural) model becomes meaningless. In this model, all the conditions of reliability and validity were met and we then proceeded to test the structural (inner) part of the model. The following section provides the results and discussion of the structural model.

5.5.2 EVALUATION OF THE STRUCTURAL MODEL (FUNCTIONAL VALUE)

After making sure that the internal consistency (convergent validity and discriminant validity) were tested and confirmed, the structural model, which shows the relationships between the constructs, was tested.

5.4.2.1 Coefficient of determination *(R^2)*

The coefficient of determination (R^2) was 0.534, meaning that the four constructs (product upgrading, process upgrading, functional upgrading and access to finance) moderately explain 53.4% variance in functional value.

5.5.2.2 Multicollinearity of the constructs

The collinearity test was also performed and the results are depicted in Table 5.20. VIF values ranged between 1.146 and 1.629 which were all less than 5 (Hair *et al.,* 2006). TVs ranged between 0.61 (lowest value) and 0.9 (highest value) which where all more than 0.10. Thus these results indicated that there is no multicollinearity problem among the independent latent variables (product upgrading, process upgrading, functional upgrading and access to finance) in this model.

Table 5.20: Collinearity statistics (functional value model)

Research Construct	Tolerance value	Variance Inflation Factor
Access to finance	0.90	1.146
Functional upgrading	0.61	1.629
Process upgrading	0.65	1.618
Product upgrading	0.86	1.213

5.5.2.3 Effect size (f^2)

Effective size (f^2) for exogenous variables was tested and the f^2 coefficients of 0.02, 0.15 and 0.35 show small, medium and large effect respectively (Hair *et al.,* 2014). The results are provided in Table 5.21 and indicate that functional upgrading, product upgrading and process upgrading have a medium effect on the endogenous variable functional value. Access to finance and process upgrading have a large effect on the endogenous latent variable functional value.

Table 5.21: Effect size (f^2) (functional value model)

Research construct	Functional value
Functional value	
Functional upgrading	0,065
Access to finance	0,318
Process upgrading	0,048
Product upgrading	0,076

5.5.2.4 Predictive relevance (Q^2)

In addition to the coefficient of determination, multicollinearity and effective size tests, the model was also tested for predictive relevance and the value obtained through the blindfolding procedure on SmartPLS version 3 is 0.214, which is larger than zero. This implies that the model has predictive relevance for the endogenous variable experiential value.

After making sure that the measurement model and the structural equation model meet the test criterion, in the next Section 5.5.3 we provide and discuss the results.

5.5.3 DISCUSSION (FUNCTIONAL VALUE)

The statistics of the path model and the hypothesis for the model as outlined in Section 2.2.2 are obtained through the bootstrap procedure with 500 samples of the same size (n=101) at a 95% confidence interval. The results of the path coefficients, t-statistics and p-values are presented in Table 5.22 and are graphically represented in Figure 5.3.

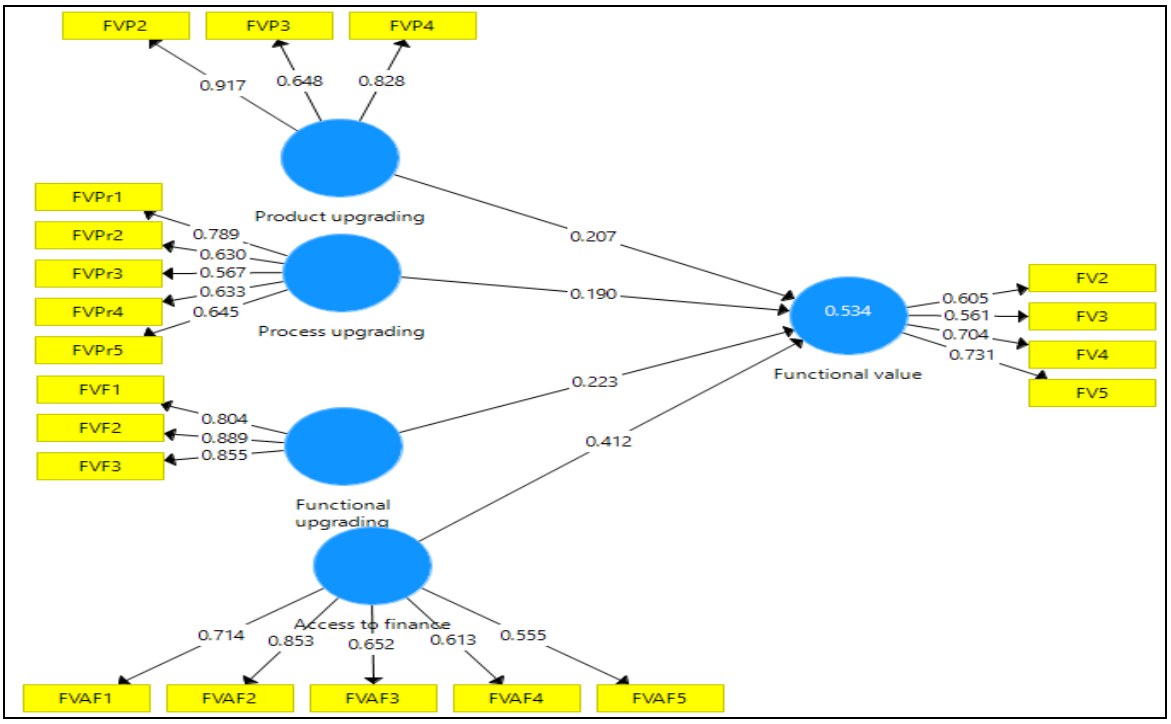

Figure 5.3: PLS-SEM path model using PLS algorithm (functional value model)

As recommended by Chin (1998) the path coefficients for product upgrading, functional upgrading and access to finance were above 0.2 and for process upgrading the coefficient was exactly 0.2 (rounded).

The study examined the structural model with one endogenous construct (functional value) and four exogenous constructs (product upgrading, process upgrading, functional upgrading and access to finance). All the constructs had a positive and significant relationship with functional value, access to finance (β = 0.412, p < 0.000, t = 3.845), process upgrading (β = 0.19, p < 0.014, t = 2.469) and product upgrading (β = 0.207, p < 0.002, t = 3.102) and functional upgrading (β = 0.233, p < 0.028, t = 2.197), therefore all hypothesises are supported (see Table 5.22).

Table 5.22: Results of the structural equation model analysis (functional value model)

Research Construct	Suggested Effect	Path coefficients	t-values	P-values	Results
Access to Finance → Functional value ($FH_1 1$)	+	0.412	3.845	0.000	Supported
Functional upgrading → Functional value ($FH_1 2$)	+	0.233	2.197	0.028	Supported
Process upgrading → Functional value ($FH_1 3$)	+	0.19	2.469	0.014	Supported
Product upgrading → Functional value ($FH_1 4$)	+	0.207	3.102	0.002	Supported

Note: P<0.05, t >1.96

The findings supported $FH_1$1, indicating that access to finance has a positive and significant relationship with functional value and thus constitutes another dimension of functional value. This dimension needs to be given attention when evaluating the value accumulation by smallholder farmers participating in the value chain. The results shown in this study indicate that through participation in the value chain smallholder farmers gain access to the requisite investment possibilities through timely and affordable access to finance. These findings therefore support the studies done by Swinnen (2005) and Maertens and Swinen (2009), which indicated that farmers' motivation to enter the high value chain was access to credit. These findings also support the studies done by London *et al.* (2010), Hazell *et al.* (2007), Wiggins *et al.* (2010), IFAD (2013) and Sjauw-Koen-Fa (2012) which argued that access to affordable financing is fundamental for smallholder farmers in order to meet investment and working capital requirements to unlock their potential and take upgrading opportunities.

The findings supported $FH_1$1, $FH_1$2, $FH_1$3 and $FH_1$4 indicating that product upgrading, process upgrading and functional upgrading has a positive and significant relationship with functional value. The product upgrading dimension included planting of new crop varieties, compliance with food safety standards, improvement of production processes and product quality. The process upgrading dimension of functional value included improvement in farming practices, improvement in pest control processes and better marketing strategies. Functional upgrading focused on improved management skills and employment of new technology. The findings are in line with the argument that the upgrading of smallholder farmers focused on agri-value chains is fundamentally linked to innovation processes (product and process), as shown in literature integrating value chain development (Ayele *et al.,* 2012; Lee *et al.,* 2012; McCullough *et al.,* 2008).

5.6 SUMMAY

The chapter has provided an analysis of the results based on the three objectives of the study. The findings on the cost model indicates that farmers incur direct financial costs such licensing fees, travel and communications, product inspection and audit fees, storage and handling costs and legal fees and these cost have an influence on their inclusion in the value chain. The findings also indicate that farmers incur psychological costs which include fear associated with compliance issues, stress due to demand for good quality, delivery times and inability to relax due to risk of losing money as a result of added costs associated with compliance. The analysis also revealed that farmers incurred regulatory and compliance costs associated with certification, monitoring, inspection and storage. The three construct constitutes an assessment of the costs that may influence the inclusion of smallholder farmers into the value chain.

The analysis also revealed that feel experience, satisfaction and think experience emerged as the distinct dimensions of experiential value for smallholder farmers participating in the deciduous fruit industry. Feel experience is reflected when customers seek comfort, joy, positive emotion and good feeling. Based on the findings, satisfaction can be conceptualised as the value that farmers derive from satisfaction in terms of quality of the service and other offerings within the value chain. Think experience is attained when businesses make their customers think, understand, and feel knowledgeable and curious.

The analysis of the functional value model revealed that that farmers captured value through product upgrading, process upgrading, functional upgrading and access to finance. Product upgrading includes planting of new crop varieties, compliance with food safety standards, improvement of production processes and product quality. Process upgrading included improvement in farming practices, improvement in pest control processes and better marketing strategies. Functional upgrading focused on improved management skills and employment of new technology. The following chapter provides a summary of the results, recommendations, limitations and outlook for future research.

CHAPTER 6
CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

6.1 INTRODUCTION

This chapter provides the conclusions, recommendations and limitations for the study, as well as the outlook for future research. The broad objective of the study was to investigate the costs and value for smallholder farmers participating in deciduous fruit value chains in South Africa. This study add to the empirical literature by specifying models that can be used to study costs and value dimensions that may influence farmers' participation in the value chain.

6.2 CONCLUSIONS

6.2.1 Costs to smallholder farmers participating in the deciduous fruit value chain

In chapter 1, it was argued that smallholder farmers incur costs in participating in the value chain. Through a review of existing literature, various studies have investigated these costs. These studies focused on investigating and documenting direct transaction costs and very little is known about other hidden or intangible costs to farmers that may influence their participation into the value chain. As these studies did not investigate costs such as regulatory and compliance costs, social and cultural costs, and psychological costs, which have a tremendous effect on the farmers, there is a knowledge gap in understanding the overall costs incurred by smallholder farmers participating in the value chain. This could lead to incorrect interventions, misalignment in policy design and incorrectly targeted intervention in value chain development involving smallholder farmers. A framework was developed and transformed this into a cost model with corresponding hypotheses that could be used to study these cost constructs. In this framework, an endogenous latent variable "cost to participate" was developed with five exogenous latent variables: direct financial costs, economic costs, psychological costs, regulatory and compliance costs, and social and cultural costs. It was hypothesised that these costs have a positive relationship with cost to participate in the value chain.

The empirical results of the cost model showed that all constructs had a positive relationship with cost to participate although not all were significant. Of the five initially proposed hypotheses, three were supported and two were not. The findings indicate that direct financial costs, psychological costs and regulatory and compliance costs have a positive and significant relationship with cost to participate in the value chain. The findings supported hypothesis $CH_1 1$ indicating that the cost to participate is significantly influenced by direct financial costs such as licensing fees, travel and communications, product inspection and audit fees, storage and handling costs and legal fees. The findings also support hypothesis $CH_1 2$, which showed a positive and significant relationship

between psychological costs and cost to participate in the value chain. Fear associated with compliance issues, stress due to demand for good quality, delivery times and inability to relax due to risk of losing money as a result of added costs associated with compliance are some of the psychological costs contributing to the overall cost to participate. Hypothesis CH_14 is also supported which indicated that regulatory and compliance costs have a positive and significant relationship with cost to participate in the value chain. This means that costs associated with certification, monitoring, inspection and storage contribute to cost to participate in the value chain. We conclude that smallholder farmers incur direct financial costs, psychological costs and regulatory and compliance costs from participating in the value chain. The inclusion of these cost dimensions on the overall cost to participate in the value chain therefore becomes very important. It is therefore infer that these constructs constitute a good measure of the cost to farmers participating in the value chain and argue that the costs highlighted above constitute a more complete construct to consider and could be a determining factor for participation.

6.2.2 Experiential value for smallholder farmers participating in the deciduous fruit value chain

It is argued that participation in the value chain allows smallholder farmers to capture value. Many studies have focused on evaluating smallholder farmer upgrading, which we refer to in this study as functional value, as a benefit in participating in the value chain. This evaluation of functional value includes measuring outcomes in terms of unit product, process and functional improvements. However, through the review on the existing literature, we found that not much attention has been given to the capture of farmer's experiential value to participate in the value chain, which is intrinsically experienced by the farmer him/herself. Evidence on experiential value for the smallholder farmers participating in the value chain is important in order to understand the overall value proposition. On this premise, we developed a framework and an experiential value model in order to empirically examine the experiential value for smallholder farmers participating in the value chain. In this framework, an endogenous latent variable "experiential value" was developed with five exogenous latent variables: act experience, feel experience, relate experience, return on investment, satisfaction and think experience. Five hypotheses were developed in order to assess the constructs included in the model.

The empirical analysis showed that of the five constituted constructs, all had a positive relationship with experiential value: three were significant and two were insignificant. One construct (act experience) was removed from the structural model because it had items below the minimum threshold and a path value far below the recommended threshold. The study found that feel experience, satisfaction and think experience were the distinct dimensions of experiential value for smallholder farmers participating in the deciduous fruit industry. The findings support hypotheses

$EH_1$1, $EH_1$4 and $EH_1$5. It is therefore conclude that farmers capture experiential value from participating in the value chain. It is further infer that these three constructs – feel experience, satisfaction, and think experience – constitute a distinct measure of experiential value for smallholder farmers participating in the deciduous fruit value chain.

6.2.3 Functional value for smallholder farmers participating in the deciduous fruit value chain

In Chapter 3, it is acknowledged through the literature that smallholder farmers participate in higher value markets to improve their products and processes through upgrading. It is also discovered that upgrading in the value chain typically takes four major upgrading strategies or trajectories: product, process, functional and institutional environment. Upgrading the institutional environment focuses on improving institutional gaps, which involves support services, and legal and policy framework that ultimately constrain value chain operations. In this study, access to finance is identified as one of these institutional gaps, which is a major obstacle for smallholder farmers, which limits them from taking upgrading opportunities in the value chain. A conceptual framework was developed and transformed into a functional value model with four hypotheses in order to examine these constructs. The framework consists of an endogenous latent variable – functional value – with four exogenous latent variables: product upgrading, process upgrading, functional upgrading and access to finance.

The empirical results revealed that all the constructs – product upgrading, process upgrading, functional upgrading and access to finance – have a positive and significant relationship with functional value. The findings supported $FH_1$1, $FH_1$2, $FH_1$3 and $FH_1$4, indicating that product upgrading, process upgrading, functional upgrading and access to finance have a positive and significant relationship with functional value. It may therefore be inferred that farmers captured value through product upgrading, process upgrading, functional upgrading and access to finance. Product upgrading includes planting of new crop varieties, compliance with food safety standards, improvement of production processes and product quality. Process upgrading included improvement in farming practices, improvement in pest control processes and better marketing strategies. Functional upgrading focused on improved management skills and employment of new technology. Moreover, the results shown in this study indicate that smallholder farmers through participation in the value chain gain access to the requisite investment possibilities through timely and affordable access to finance. It is inferred that all these four constructs constitute a more complete measure of functional value for smallholder farmers participating in the deciduous fruit value chain.

6.3 RECOMMENDATIONS

As part of the recommendations, there are crucial interventions that government, development practitioners, profit firms and non-profit firms can take to promote smallholder participation in the value chain.

The study has identified various drivers that lead to exclusion of smallholder farmers in the value chain. As mentioned above, the study concludes that smallholder farmers incur direct financial costs, psychological costs and regulatory and compliance costs. The study also conclude that for smallholder farmers to take up upgrading opportunities, access to requisite finance is crucial. The study recommends the use of digital innovation, coordination and organisation of smallholder farmers and collaborations between public–private institutions within the value chain. This will aid in reducing the drivers of exclusion of smallholder farmers in the value chain. These recommendations are expanded below:

6.3.1 Use of digital innovation to improve participation of smallholder farmers in the value chain

Digital innovation could create more benefits to smallholder farmers and other public and private stakeholder. These benefits include increasing productivity and lowering transaction costs and improve transparency. The most simple and basic benefit of digital innovation is that it can help farmers lower crop damage, produce high yields through use of fewer inputs such as fuel, water and fertilizer. Data analysis from digital platforms help farmers to optimise decision-making and ultimately reduce production and transaction costs. The costs can be reduced due to economies of scope. This is due to the fact that many of these platforms are owned by big suppliers which supply inputs such as pesticides and seeds. These platforms serves as one-stop shops for farmers and assist in eliminating the importance to invest energy and time in searching for information and monitoring relationships with various suppliers. The following sections therefore makes specific recommendations on the use of digital innovation on the drivers identified in the study.

6.3.1.1 Use of digital innovation in reducing transaction costs to improve participation of smallholder farmers in the value chain

Standards and certification for compliance have become necessary in the world food trading systems. However, their implementation generates costs for farmers and can be a deterrent for participation in the value chain. The array of regulations and administrative processes needed for proof of compliance applicable to agricultural and food imports often leads to long and costly export processes. Digital innovation can lower transaction costs and improve supply chain traceability with

different actors accumulating benefits across the value chain. With digital technologies, actors in the value chain, even smallholder farmers, increasingly have access to a range of digital tools. These tools reduce information asymmetry, lower co-ordination and transaction costs, and significantly improve access to and knowledge about trade opportunities. Digital innovation can benefit the following actors:

Input suppliers. Digital innovation could provide input providers with data that would allow them to better understand the market landscape. This could include product usage and flows. The data generated through the digital platforms could support in the development of more custom-made advisory services and offerings. In addition, digital innovation could help address the challenge of inferior inputs, helping to validate and authenticate producers. Availability of this information could help reduce the transaction costs for the input supplier but also on the producer side.

Producers/farmers: Digital innovation can be utilised to compile farmer profiles and facilitate information sharing. This could facilitate better adoption of production standards and certification by identifying farmers that are well placed to pursue certification, streamlining accreditation procedures, and comprehensively tracking the impact of new farm management techniques on farm production.

Traders: Players engaged in trading, moving and processing foods could benefit in additional data that will improve their understanding of inputs used by farmers and product location. This additional data can better improve risk models, operational, logistics, and trading decisions. Digital innovation has a potential to increase transparency and efficiency.

Retailers: Use of digital innovation in the value chains can provide an opportunity to assess farm practices for compliance to voluntary or mandatory standards.

6.3.1.2 Use of digital innovation in improving access to finance for farmers to take up functional value opportunities.

The empirical results of the study indicated that smallholder farmers, through participation in the value chain gain access to the requisite investment possibilities needed to take advantage of upgrading opportunities. Digital innovations, such as digital finance offer an extraordinary opening to address various challenges faced by value chain actors and financial service providers (FSPs). This innovation reduces information asymmetries and transaction costs. Collection and analysis of digital data, which include to sales and payments as well as seasonality of cash flows especially in farmers and value chain actors, can reduce barriers to providing credit. The rise in the use of mobile phones and branchless banking could help make payments to and from smallholder farmers more efficient. This could lead to reduction to the challenge of collecting deposits and offering affordable insurance products.

Digital bulk payments such as mobile money can reduce the costs and risks involved in cash based transactions. They could also generate data trail on farmer's cash flows, which can be used to assess credit risk. Mobile payments represent a fascinating value proposition to buyers and suppliers of agricultural commodities. This can reduce the burden of pay-outs and cash-in transit and ultimately reduces the share of their operation cost. Digital innovation can also address some of the challenges of offering agricultural insurance to smallholder farmers by enhancing actuarial estimations and reducing the cost of delivering and monitoring insurance products.

Apart from using digital innovation, there are other measures that could be used to reduce the drivers of exclusion of smallholder farmers from participating in the value chain and these include coordination and organisation of smallholder farmers, collaborations between public–private institutions within the value chain and rethinking the role of government. These are expanded below.

6.3.4 Coordination and organisation of smallholder farmers

Based on the findings, smallholder farmers incur costs from participating in the value chain, therefore there is a need for policy interventions focusing on reducing these costs. We recommend lowering direct financial costs through improved coordination and organisation of smallholder farmers' participation in the value chain. Producer organisations can play a pivotal role by increasing the units and volumes that traders need and this could improve the smallholder farmers' bargaining power. This could also reduce the number of transactions for the processors and exporters in the value chain and thereby reduce the cost to farmers.

The increase in direct financial costs in modern value chains, which are more efficiently handled by larger producers, provides a motivation for smallholder farmers to coordinate their activities. For example, joint certification in terms of GlobalGAP, improved access to information, quality control mechanisms, share of storage and handling facilities, coordination transportation of produce, etc. would allow these smallholder farmers to efficiently reduce costs and to operate at the same scale and cost as larger producers. Coordination with fellow producers to increase economies of scale can reduce transaction costs. Furthermore, coordination and organisation of smallholder farmers strengthens their voices and improves their bargaining power in the negotiating of contract schemes or funding/financing mechanisms, which reduces costs to participate in the value chain.

6.3.5 Collaborations between public–private institutions within the value chain

Collective action is a vital feature of public–private partnerships and can help to reduce transaction costs and promote participation of smallholder farmers in the value chain. There is a need for collaboration of public–private institutions within the value chain. This collaboration could include public institutions, agribusiness companies, financial institutions, non-governmental organisations,

agro-enterprises and farmer organisations as well as individual farmers. For these partnerships to succeed, they require the private sector to be well organised and well represented. Government should be supportive of these formations and have open channels of communication. For example, private sector due to their technical abilities and possibilities could get involved in setting public standards, in the development of certification protocols, and in the establishment of control systems for food safety. Public institutions and private institutions can support the formation of farmer groups and provide capacity building training to smallholders. An example of such collaboration is the Market Access Programme of the Western Cape Department of Agriculture, which includes collaboration with institutions such as Hortgro, the Perishable Products Export Control Board (PPECB) and the Sustainability Initiative of South Africa (SIZA). Part of this collaboration is capacity building to assist farmers with compliance issues and exposure trips to markets where they supply their produce. The training could be targeted to the strengthening of their bargaining power during contract negotiations with private agribusiness companies. Training could be on compliance issues such GlobalGAP and ethical trade.

The participation of financial institutions as a partner could improve access to finance for smallholders. Due to linkage with agribusinesses and agro-enterprises, financial institutions could enhance their risk management mechanisms and improve access to finance for smallholders. This could facilitate easy access to finance, and lower the cost of lending by finance institutions and the cost of borrowing by smallholder farmers. In a broader sense, transaction costs involved in providing finance to smallholder farmers could be reduced.

6.3.6 Rethinking the role of government in integrating smallholder farmers into the value chain

The development and integration of smallholder farmers into high value chains necessitates a fundamental reconsideration of the role of government in policy making. It has been argued in the literature that access to finance is a major obstacle for smallholder farmers in a quest to take the upgrading opportunities in the value chain. In this study, we found that access to finance is another dimension of smallholder farmer upgrading strategies. Within the value chain, various innovative value chain-based financing mechanisms have been initiated. These mechanisms are created by private companies with government playing a limited role. The establishment of value chain finance modalities that are sector-specific could also help reduce transaction costs emanating from information asymmetry. These modalities could be formed through a linkage with government, industry organisations, export companies and other value chain actors participating in the deciduous fruit value chains. Upgrading decisions by smallholder farmers could only be possible through investment in their farming activities. Investment targeted specifically at the deciduous fruit sector could make implementing long-term initiatives easier.

Government intervention could be in the form of the provision of a regulatory and legal framework, which is required for these mechanisms to function. Government could also play a role in co-financing seed money to facilitate the start-up of these instruments. An example is the value chain financing mechanism established by the deciduous fruit industry body HORTGRO, where provincial government through the Western Cape Department of Agriculture Jobs Fund and HORTGRO itself collaborate in providing grant financing which saw the establishment of new orchards and new varieties through the Tree project. This has led to product upgrading by smallholder farmers participating in the deciduous fruit value chain. This financing mechanism has grown to another value chain mechanism where HORTGRO, the Land Bank and Jobs Fund established a R600 million value chain mechanism to on finance smallholder farmers participating in the deciduous fruit industry.

Furthermore, government should improve provision of extension and training interventions. This could be through building smallholder capabilities by facilitating the quality of information that smallholder farmers use when they make production and investments decisions.

6.4 LIMITATIONS OF THE STUDY AND OUTLOOK FOR FURTHER RESEARCH

This study has some limitations that need to be acknowledged. Firstly, although there is a lot of literature on experiential value, it has been difficult to offer a full description of the nature of the experiential value constructs in the agricultural value context. However, there might be other experiential value dimensions have not been identified in the conceptual framework of this study. Despite this challenge, this study conducted interviews on smallholder farmers in order to identify and examine dimensions of experiential value proposed by Schmitt (1999) as these dimensions were found to be more applicable to smallholder farmers. Future studies should seek to identify additional experiential value dimensions such as consumer return on investment, service excellence, playfulness and aesthetic appeal.

Second, the survey data was collected on smallholder farmers participating in the deciduous fruit value chain and the sample size was relatively small. Therefore, the findings cannot be generalised for other value chains within the agricultural sector.

Thirdly the study used purposive sampling and therefore caution must be used when generalising the results of this study from a sample point view. Future studies should consider developing a sampling design such as probability sampling to better represent the target sample.

This research was conducted via cross sectional study. Therefore, the changes of the farmer's experiential value over a period were not examined. Future studies should attempt to use longitudinal study in examining these experiential value dimensions.

The measurement items used in the study were newly developed. These items were tested from a small group of farmers before they are fully utilised. However, although they were created based on the reviewed literature and an attempt was made to pilot and refine them, these measurement items might need to be revisited before applying them to other value chain studies.

REFERENCES

Aaker, A., Kumar, V.D. & George, S. 2000. *Marketing research.* New York: John Wiley and Sons.

Ab Hamid M.R., Sami, W. & Mohamad Sidek, M.H. 2017. Discriminant validity assessment: use of Fornell & Larcker criterion versus HTMT criterion. [Online] Available: pdfs.semanticscholar.org/5b18/87c4eb4413d27abc271e080fe69476a8e3f4.pdf Accessed 16 April 2018.

Addis, M. & Holbrook, M.B. 2001. On the conceptual link between mass customisation and experiential consumption: an explosion of subjectivity. *Journal of Consumer Behaviour*, 1: 50–66.

Agarwal, B. 2001. Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. *World Development,* **29**: 1623–1648.

Agarwal, B. 2003. Gender and land rights revisited: exploring new prospects via the state, family and market. *Journal of Agrarian Change,* **3**:184–224.

Alene, A.D., Manyong, V.M., Omanya, G., Mignouna, A.D., Bokanga, M. & Odhiambo, G. 2008. Smallholder market participation under transaction costs: Maize supply and fertilizer demand in Kenya. *Food Policy*, **33**(4): 318–328.

Anderson, E.W. 1972. Convenience orientation and consumption behavior. *Journal of Retailing*, **48**:49–71.

Anderson, E.W. & Sullivan, M.W. 1993. The antecedents and consequences of customer satisfaction for firms. *Marketing Science,* **12**(2):125–143.

Anderson, J.C. & Gerbing, D.W. 1988. Structural equation modelling in practice: A review and recommended two-step approach. *Psychological Bulletin,* **103**(3): 411–423.

Ang, A. 2011. Value chain financing for agriculture and rural microenterprise. [Online] Available: http://www.hss.de/fileadmin/suedostasien/philippines/downloads/111111-Value-Chain-Financing.pdf Accessed: 15 March 2015.

Ayele, S., Duncan, A., Larbi, A. & Khanh, T.T. 2012. Enhancing innovation in livestock value chains through networks: lessons from fodder innovation case studies in developing countries. Science and Public Policy. [Online] Available: https://academic.oup.com/spp/article/39/3/333/1725181 Accessed 19 February 2019.

Babbie, E.R. 2010. *The practice of social research*. Belmont, CA: Wadsworth.

Babin, B.J., William, R. & Darden, M.G. 1994. Work and/or fun: measuring hedonic and utilitarian shopping value. *Journal of Consumer Research*, **20**(4): 644–656.

Bagozzi, R.P., Baumgartner, H. & Yi, Y. 1992. State versus action orientation and the theory of reasoned action: an application to coupon usage. *Journal of Consumer Research*, **18**(4): 505–518.

Bagozzi, R.P. & Yi, Y. 1988. On the evaluation of structural equation models. *Journal of the Academy of Marketing Science,* **16**(1): 74–94.

Baker, J., Parasuraman, A., Grewal, D. & Voss, G.B. 2002. The influence of multiple store environment cues on perceived merchandise value and patronage intentions. *Journal of Marketing,* **66**: 120–141.

Baloyi, J.K. 2010. An analysis of constraints facing smallholder farmers in the Agribusiness value chain: a case study of farmers in the Limpopo province. [Online] Available: http://repository.up.ac.za/bitstream/handle/2263/29038/dissertation.pdf?sequence=1. Accessed 23 August 2015.

Bailey, D., Barrette, C.B., Little, P.D., & Chabari, F. 1999. Livestock markets and risk management among East African pastoralists: A review and research agenda. Utah University, USA.

Bardhan, P. 1990. Symposium on the state and economic development. J*ournal of Economic Perspectives*, **4**(3): 3–7.

Bardhan, P.K. 1980. Interlocking factor markets and agrarian development: a review of issues. *Oxford Economic Papers*, **32**(1): 79–98.

Barrett, C. 2008. Smallholder market participation: concepts and evidence from eastern and Southern Africa. *Food Policy*, **33**: 299–317.

Batra, R. & Ahtola, O.T. 1991. Measuring the hedonic and utilitarian sources of consumer attitudes. *Marketing Letters* **2**(2): 159–170.

Battaglia, M.P. 2008. Nonprobability sampling. In *Encyclopedia of Survey Research Methods* (pp. 523–526). SAGE Publications.

Benitez, J., Henseler, J., Castillob, A. & Schuberth. F. 2019. How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research*. Information & Management*, 1-15.

Bennett, F. Brewer, M. & Shaw J. 2009. Understating the compliance costs of benefits and tax credits. Institute for Fiscal Studies, London.

Bianabe, E., Coronel, C., Le Coq, J. & Liagre, L. 2004. *Linking smallholder farmers to markets: Lessons learned from literature reviews and analytical review of selected projects.* Study report, Final draft. CIRAD & IRAM. World Bank.

Bourque, L.B. & Fielder, E.P. 1995. *How to conduct self-administered and mail surveys*. Thousand Oaks, CA: Sage.

Bollen, K. 1989. A new incremental fit index for general structural equation models, *Sociol. Methods Res,* **17**(3): 303–316.

Bryman, A. 2012. *Social research methods* (4th ed.). New York: Oxford University Press.

Bryman, A. & Bell, E. 2007. *Business research methods*. USA: Oxford University Press.

Bureau for Food and Agricultural Policy (BFAP). 2018. *Agricultural outlook 2018–2027*. [Online] Available: http://www.bfap.co.za/wp-content/uploads/2018/08/BFAPBaseline-2018.pdf Accessed 10 April 2019.

Burns, A.C. & Bush, R.F. 2002. *Marketing research: Online research applications* (4th ed.). New Jersey: Prentice Hall.

Byrne, B.M. 2001. *Structural equation modelling with AMOS: basic concepts, applications, and programming.* New Jersey: Lawrence Erlbaum Associates.

Campbell, D.T. & Fiske, D.W. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, **56**: 81–105.

Carmines, E.G. & Zeller, R.A. 1991. *Reliability and validity assessment*. Newbury Park: Sage Publications.

Carmon, Z., Shanthikumar, J.G. & Carmon, T.F. 1995. *A psychological perspective on service segmentation models: the significance of accounting for consumers' perceptions of waiting and service.* [Online] Available: https://ai2-s2-pdfs.s3.amazonaws.com/563c/9db7f006a2307e70f5c5fcd39694a2b1f93c.pdf Accessed: 10 June 2016.

Caru, A. & Cova, B. 2003. Revisiting consumption experience. A more humble but complete view of the concept. *Marketing Theory,* **3**(2): 267–286.

CGAP (2014a). Understanding Smallholder Demand for Financial Services. [Online] Available: http://www.cgap.org/blog/understanding-smallholder-demand-financial-services. Accessed 12 August 2015.

Chin, W.W. 1998. The partial least squares approach to structural equation modelling. In G.A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–358). Mahwah, NJ: Lawrence Erlbaum Associates.

Chin, W.W., Marcolin, B.L. & Newsted, P.R. 1996. *A partial least squares latent variable modelling approach for measuring interaction effects: results from a Monte Carlo simulation study and voice mail emotion/adoption study*. Paper presented at the 17th International Conference on Information Systems, Cleveland, OH.

Chin, W.W., Marcolin, B.L. & Newsted, P.R. 2003. A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and electronic mail emotion/adoption study. *Information Systems Research,* **14**(2): 189–217.

Chinomona, R. & Surujlal, J. 2012. The influence of student internship work experience on their self-improvement and professionalism in sport management. *African Journal for Physical, Health Education, Recreation and Dance (AJPHERD),* **4**(2): 885–899.

Chisasa, J. 2014. A diagnosis of rural agricultural credit markets in South Africa: empirical evidence from North West and Mpumalanga provinces. *Banks and Bank Systems*, **9**(2): 100–111.

Chisasa, J. & Makina, D. 2012. Trends in credit to smallholder farmers in South Africa. *International Business & Economics Research Journal*, **11**(7): 771–783.

Churchill, G.A. 1979. Paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, **16**(1): 64–73.

Churchill, G.A.1991. Marketing Research: Methodological Foundation," 5th Edition, Dryden Press, New York.

Churchill, G.A. & Iacobucci, D. 2004. *Marketing research: methodological foundations* (9th ed.). Ohio: Thomson South-Western.

Clark, L.A., & Watson, D. 1995. Constructing validity: basic issues in objective scale development. *Psychological Assessment*, **7**(3):309–319.

Coase, R.H. 1937. The nature of the firm. *Economica* **4**(16): 386–405.

Coetzee, G. 2012. Towards financial inclusion with branchless banking. Paper presented at "From microfinance to financial inclusion in Africa IDC conference", Sandton, 22-23 May 2012.

Coetzee, G., Meyser, F. & Adam, H. 2002. *The financial position of South African Agriculture*. Working Paper: 2002-01. Department of Agricultural Economics, Extension and Rural Development, University of Pretoria,

Cohen, J. 1988. *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, J. 1992. A power primer. *Psychological Bulletin,* **112**(1): 155–159.

Commons, J.R. 1934. *Institutional Economics*. New York: Macmillan.

Conway, T. & Leighton, D. 2012. Staging the past, enacting the present: experiential marketing in the performing arts and heritage sectors. *Arts Marketing: An International Journal*, **2**(1): 35–51.

Cooper, D.R. & Schindler, P.S. 2008. *Business research methods* (10th ed.). New York: McGraw-Hill.

Creswell, J.W. 2014. *Research design: qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: SAGE Publications.

Creswell, J.W., & Plano Clark, V.L. 2011. *Designing and conducting mixed method research* (2nd ed.). Thousand Oaks, CA: Sage.

Cronbach, L.J. 1951. Coefficient alpha and the internal structure of tests. *Psychometrika*, **16**(3): 297–334.

Cronin, J. Jr., Brady, M. & Hult, T. 2000. Assessing the effects of quality, value, and customer satisfaction on consumer behaviour intentions in service environments. *Journal of Retailing*, **76**(2): 193–218.

Crosby, G., Clark, A., Hayes R., Jones, K. & Lievesley, N. 2008. *The financial abuse of older people: a review from the literature carried out by the Centre for Policy on Ageing on behalf of Help the Aged*. [Online] Available: http://www.cpa.org.uk/information/reviews/financialabuse240408%5B1%5D.pdf Accessed 14 March 2017.

Cuevas, A. 2014. Transaction cost of exchange in agriculture. *Asian Journal of Agriculture and Development*, **11**(1): 22–38.

DAFF. 2013. *Abstract of Agricultural Statistics*. [Online] Available: www.nda.agric.za/docs/statsinfo/abstact2013.pdf. Accessed 14 September 2017.

DAFF. 2016a. *A profile of the South African apple market value chain*. [Online] Available: https://www.nda.agric.za/doaDev/sideMenu/Marketing/Annual%20Publications/Commodity%20Profiles/field%20crops/Apple%20market%20value%20chain%20profile%202016.pdf Accessed 13 March 2019.

DAFF. 2016b. *Economic review of South African agriculture*. [Online] Available: https://www.daff.gov.za/Daffweb3/Portals/0/Statistics%20and%20Economic%20Analysis/Economic%20Analysis/Economic%20Review%202016.pdf. Accessed 14 September 2017.

DAFF. 2018a. *Local market fruit sales data*. Pretoria: Directorate of Agricultural Statistics.

DAFF. 2018b. *Crops and markets*. [Online] Available: https://www.daff.gov.za/Daffweb3/Portals/0/Statistics%20and%20Economic%20Analysis/Statistical%20Information/Crops%20and%20Markets%204th%20Quarter%202018.pdf Accessed 12 March 2019.

Dalberg Global Development Advisors. 2012. *Catalyzing smallholder agricultural finance*. [Online] Available: http://dalberg.com/documents/Catalyzing_Smallholder_Ag_Finance.pdf. Accessed 02 September 2015.

Da Silva, C. 2007. *Improving small farmers' access to finance: the pros and cons of contract farming*. Presentation at the Asia International Conference.

Davis B., Di Giuseppe, S & Alberto Zezza, A. 2014. Income Diversification Patterns in Rural Sub-Saharan Africa Reassessing the Evidence. [Online] Available: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/11/13/000158349_20141113133939/Rendered/PDF/WPS7108.pdf. Accessed 05 September 2015.

Davison, A.C. & Hinkley, D.V. 2003. *Bootstrap methods and their application* (2nd ed.). New York, NY: Cambridge University Press.

De Klerk, M. Fraser, F. & Fullerton, K. 2013. The Status of Agricultural and Rural Finance in South Africa, Finmark Trust. [Online] Available: http://www.finmark.org.za/wp-content/uploads/pubs/Rep_statusAgrRurFin_SA_2013_FNL2.pdf . Accessed: 10 April 2010.

Delgado, C. 1997. The role of smallholder income generation from agriculture in Sub-Saharan Africa. In L. Haddad (Ed.), *Achieving food security in Southern Africa: new challenges, New Opportunities.* Washington DC: International Food Policy Research Institute.

De Ruyter, J.K., Wetzels, M., Lemmink, J. & Mattson, J. 1997. The dynamics of the service delivery process: a value-based approach. *International Journal of Research in Marketing*, **14**: 231–43.

Diamantopoulos, A. 2006.The error term in formative measurement models: interpretation and modelling implications. *Journal of Modelling in Management,* **1**(1): 7–17.

Diamantopoulos, A. & Siguaw, J.A. 2000. *Introducing LISREL*. London: Sage Publications.

Diamantopoulos, A., & Winklhofer, H. 2001. Index construction with formative indicators: An alternative to scale development. *Journal of Marketing Research*, **38**(2): 269–277.

Dodds, W.B., Monroe, K.B. & Grewal, D. 1991. Effects of price, brand and store information on buyers' product evaluations, *Journal of Marketing Research*, **28**: 307–19.

Dolan, C. & Humphrey, J. 2000. Governance and trade in fresh vegetables: The impact of UK supermarkets on the African horticulture industry. *Journal of Development Studies*, **37**(2): 147–76.

Dolan, C. & Humphrey J. 2004. Changing governance patterns in the trade in fresh vegetables between Africa and the United Kingdom. *Environment and Planning,* **36**: 491-509.

Dorward, A., Poulton, C. & Kydd, J. 2001. *Rural and farmer finance: an international perspective*. Paper presented at a workshop on rural finance, South African Association of Agricultural Economists, 19 September, Drakensburg.

Dunn, E. 2014. Smallholders and inclusive growth in agricultural value chains. [Online] Available: https://agrilinks.org/sites/default/files/resource/files/FIELD%20Report%20No%2018%20Smallholders%20in%20Value%20Chains.pdf. Accessed 20 March 2016.

Dunn, E., Schiff, H. & Creevey, L. 2011. *Linking small-scale vegetable farmers to supermarkets: effectiveness assessment of the GMED India project*. USAID AMAP microReport #166.

Dunn, E., Sebstad, J., Batzdorff, L. & Parsons H. 2006. *Lessons learned on MSE upgrading in value chains*. [Online] Available: http://www.value-chains.org/dyn/bds/docs/566/USAID%20AMAP%20Upgrading%20Dec%2006.pdf Accessed 16 March 2018.

du Preez, J. 2018. *Industry overview.* Presentation, Hortgro. [Online] Available: https://www.hortgro.co.za/wp-content/uploads/2016/11/SA-Industry-Overview-Jacques-du-Preez.pdf. Accessed 13 March 2019.

Eggertson, T. 1990. *Economic behaviour and institutions.* Cambridge Survey of Economic Literature. Cambridge: Cambridge University Press.

Elmore, P.E. & Beggs, D.L. 1975. Salience of concepts and commitments to extreme judgments in response patterns to teachers. *Education,* **95**(4): 325–334.

El-Zoghbi, M. & Tarazi, M. 2013. *Trends in Sharia-compliant financial inclusion*. CGAP Focus Note 84. [Online] Available: https://www.cgap.org/sites/default/files/Focus-Note-Trends-in-Sharia-Compliant-Finanicial-Inclusion-Mar-2013.PDF. Accessed 10 October 2016.

Fafchamps, M. & Hill, R.V. 2005. Selling at the farm gate or travelling to market. *American Journal of Agricultural Economics,* **87**(3): 717−734.

FAO. 2010. Agricultural value chain development: Threat or opportunity for women's employment? http://www.fao.org/3/i2008e/i2008e04.pdf Accessed 10 Sept 2019.

FAO, 2005. Food Security and Agricultural Development in Sub-Saharan Africa: Building a case for more public support . Policy Brief No. 1. [Online] Available: http://www.oecd.org/tad/agricultural-policies/36784159.pdf. Accessed 10 October 2015.

FARNPAN, 2013. Appropriate Climate Smart Technologies for Smallholder Farmers in Sub-Saharan Africa. Policy Brief, Issue no. 2: Volume XIII. [Online] Available: http://www.fanrpan.org/documents/d01637/acsa_appropriate_technologies_for_smallholder_farmers_june_2013.pdf . Accessed 13 September 2015.

Fernandez-Stark, K. & Bamber, P. 2012. Assessment of five high-value agriculture inclusive business projects sponsored by the Inter- American Development Bank in Latin America. [Online]

Available: http://www.fao.org/sustainable-food-value-chains/library/details/en/c/262525/. Accessed 19 May 2018.

FinMark Trust (2010), Survey Highlights: FinScope South Africa 2010. [Online] Available: http://finmark.org.za/finscope-small-business-survey-2010/. Accessed: 29 March 2015.

Fletschner, D. & Kenney, L. 2011. *Rural women's access to financial services: credit, savings and insurance*. [Online] Available: http://www.fao.org/3/a-am312e.pdf. Accessed 16 May 2017.

Fornell, C.G., & Bookstein, F.L. 1982. Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research,* **19**(4): 440–452.

Fornell, C. & Larcker, D.F. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* **18**(1): 39–50.

Fromm, I. 2007. Upgrading in agricultural value chains: the case of small producers in Honduras. [Online] Available: https://www.giga-hamburg.de/en/system/files/publications/wp64_fromm.pdf. Accessed 16 May 2016.

GAIN. 2018. *Report on fresh deciduous fruit*. [Onlline] Available: https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Fresh%20Deciduous%20Fruit%20Semi-annual_Pretoria_South%20Africa%20-%20Republic%20of_5-15-2018.pdf. Accessed 01 March 2019.

Garland, R. 1991. The mid-point on a rating scale: Is it desirable? *Marketing Bulletin*, **2**: 66.

Geisser, S. 1975. The predictive sample reuse method with applications. *Journal of the American Statistical Association*, **70**(350): 320–328.

Gereffi, G. 1994. The organisation of buyer-driven global commodity chains: How U.S. retailers shape overseas production networks. In G. Gereffi & M. Korzeniewicz (Eds.), *Commodity chains and global capitalism* (pp. 95−122). Westport, CT: Praeger.

Gereffi, G., Humphrey, J., Kaplinsky, R. & Sturgeon, T. 2001. Introduction: globalisation, value chains and development. *IDS Bulletin,* **32**(3): 1–8.

Gereffi, G. & Memedovic, O. 2003. *The global apparel value chain: what prospects for upgrading by developing countries?* Sectoral Studies Series. Vienna: UNIDO.

Glass, G.V. & Hopkins, K.D. 1984. *Statistical methods in education and psychology* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Gupta, K.P. 2009. Cost Management. Management, Monitoring and Motivating performance. Global Indian publications PVT LTD, New Delhi.

Goetz, S.J. 1992. A selectivity model of household food marketing behavior in sub-Saharan Africa. *American Journal of Agricultural Economics,* **74**(2): 444–52.

Gold, A.H., Malhotra, A. & Segars, A.H. 2001. Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems,* **18**(1): 185–214.

Gotschi, E., Njuki, J. & Delve, R. 2009. Equal number. Equal chances? A case study of gender differences in the distribution of social capital in smallholder farmer groups in Búzi District, Mozambique. *European Journal of Development Research,* **21**: 264–282.

Grewal, D., Monroe, K. & Krishnan, R. 1998. The effects of price-comparison advertising on buyers' perceptions of acquisition value, transaction value, and behavioral intentions. *Journal of Marketing*, **62**(2): 46–59.

Hair, J., Risher, J., Sarstedt, M. and Ringle, C. 2019. "When to use and how to report the results of PLS-SEM", *European Business Review*, **31**(1):2-24.

Hair, J.F., Hollingsworth, C.L., Randolph, A. B., & Chong, A.Y.L. 2017. An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems,* **117**(3): 442–458.

Hair, J.F., Black, W.C., Babin, B.J. & Anderson, R.E. 2010. *Multivariate data analysis* (7th ed.). Englewood Cliffs: Prentice Hall.

Hair, J., Black, W., Babin, B., Anderson, R. & Tatham, R. 2006. *Multivariate data analysis* (6th ed.). Uppersaddle River, NJ: Pearson Prentice Hall.

Hair, J.F., Bush, R.P. & Ortinau, D.J. 2003. *Marketing research: within a changing information environment* (2nd ed.). New York: McGraw-Hill/Irwin.

Hair, J.F., Hult, G.T.M., Ringle, C.M. & Sarstedt, M.M. 2014. *A primer on partial least squares structural equation modeling (PLS-SEM)*. California: Thousand Oaks, SAGE Publications.

Hair, J.F., Ringle, C.M. & Sarstedt, M. 2011. PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice,* **19**(2): 139–51.

Hayes, B.E. 1998. *Measuring customer satisfaction: survey design, use and statistical analysis methods.* Milwaukee, WI: ASQ Quality Press.

Hazell, P., Poulton, C., Wiggins, S. & Dorward, A. 2007. *The future of small farms for poverty reduction and growth.* 2020 Discussion Paper No. 42. Washington, DC: International Food Policy Research Institute.

Heltberg, R. & Tarp, F. 2002. Agricultural supply response and poverty in Mozambique. *Food Policy*, **27**(2): 103–124.

Henseler, J., Ringle, C.M. & Sarstedt, M.A. 2015. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science,* **43**(1): 115–135.

Henseler, J., Ringle C.M. & Sinkovics, R.R. 2009. The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, **40**: 277–319.

Hobbs, J.E. 1996. A transaction cost approach to supply chain management. *Supply Chain Management*, **1**(2): 15–27.

Hobbs, J.E. 1997. Measuring the importance of transaction costs in cattle marketing. *American Journal of Agricultural Economics*, **79**(4): 1082–1095.

Hobbs, J.E. & Kerr, W. 1999. Transaction costs. In D.S. Bhagwan (Ed.), *The current state of economic science* (Vol. 4, pp. 2111–2133). Rohtak: Spellbound Publications.

Holbrook, M. 1994. The nature of customer value: an anthology of services in the consumption experience. In R.T. Rust & R.L. Oliver (Eds.), *Service quality: new directions in theory and practice* (pp. 21–71). Thousand Oaks, CA: Sage Publications.

Holloway, G., Nicholson, C., Delgado, C., Staal, S. & Ehui, S. 2000. Agroindustrialization through institutional innovation: transaction costs, cooperatives and milk-market development in the east-African highlands. *Agricultural Economics*, **23**(3): 279–288.

Hortgro Science. 2015. *Hortgro Crop Protection Seminar 2015*. [Online] Available: https://www.hortgro-science.co.za/?plugin=all-in-one-event-calendar&controller=ai1ec_exporter_controller&action=export_events&ai1ec_post_ids=1225&xml=true. Accessed on 14 December 2015.

Hortgro, 2016. *Key deciduous fruit statistics*. [Online] Available: https://www.hortgro.co.za/wp-content/uploads/2017/06/HORTGRO-Key-Deciduous-Fruit-Statistics-2016.pdf. Accessed on 03 December 2017.

Hortgro. 2017. *Stone fruit (apricots, nectarines, peaches) production and export data*. Paarl: Information and Market Intelligence Division.

Hortgro. 2018. *Key deciduous fruit statistics*. [Online] Available: www.hortgro.co.za Accessed 16 April 2019.

Hoyle, R.H. (Ed.). 1995. *Structural equation modeling: concepts, issues and applications*. Newbury Park, CA: Sage.

Hui, B.S. & Wold, H. 1982. Consistency and consistency at large of partial least squares estimates. In K.G. Jöreskog & H. Wold (Eds.), *Systems under indirect observation: Part II* (pp. 119–130). Amsterdam: North Holland.

Hulland, J. 1999. Use of partial least squares (PLS) in strategic management research: a review of four recent studies. *Strategic Management Journal*, **20**(2): 195–204.

International Fund for Agricultural Development (IFAD). 2010. *Value chains, linking producers to the markets*. Livestock thematic papers: Tools for project design. Rome: IFAD.

International Fund for Agricultural Development (IFAD). 2013. *Smallholders, food security and the environment*. Available at: [Online] Available www.ifad.org/climate/resources/smallholders_report.pdf. Accessed 10 October 2015.

IFC. 2011. *Scaling up access to finance for agricultural SMEs: policy review and recommendations*. Washington DC: IFC. [Online] Available: http://documents.worldbank.org/curated/en/477491468162872197/Scaling-up-access-to-finance-for-agricultural-SMEs-policy-review-and-recommendations Accessed 10 October 2015.

IFC. 2014. *Access to finance for smallholder farmers: learning from the experiences of microfinance institutions in Latin America*. [Online] Available http://documents.worldbank.org/curated/en/965771468272366367/Access-to-finance-for-smallholder-farmers-learning-from-the-experiences-of-microfinance-institutions-in-Latin-America. Accessed 01 August 2015.

International Trade Centre (ITC). 2018. *International trade database*. [Online] Available: www.trademap.org. Accessed 13 April 2019.

Iyanda, J.O., Afolami, C.A., Obayelu, A.E. & Ladebo, O.J. 2014. Social Capital and Access to Credit among Cassava Farming Households in Ogun State, Nigeria. *Journal of Agriculture and Environmental Sciences,* **3**(2):175-196.

Jaffee, S. 1995. Transaction costs, risks and the organisation of private sector food commodity systems. In S. Jaffee & J. Morton (Eds.), *Marketing Africa's high-value food: comparative experiences of an emergent private sector* (pp. 21−62). Dubuque, IA: Kendall/Hunt Publishing Company.

Jaffee, S., Henson, S. & Rios, L.D. 2011. *Making the trade: smallholder farmers, emerging standards and development assistance programs in Africa – a research program synthesis*. Washington DC: World Bank.

Jaffee, S. & Morton, J. (Eds.) 1995a. *Marketing Africa's high-value foods: comparative experiences of an emergent private sector*. Dubuque, IA: Kendall/Hunt Publishing Company.

Jaffee, S. & Morton, J. 1995b. Private sector high-value food processing and marketing: a synthesis of African experience. In S. Jaffee & J. Morton (Eds.), *Marketing Africa's high-value roods: comparative experiences of an emergent private sector*. Dubuque, IA: Kendall/Hunt Publishing Company.

Jangwe, J.N. 2011. *The impact of transaction costs on the participation of smallholder farmers and intermediaries in the banana markets of Burundi, Democratic Republic of Congo and Rwanda*. Unpublished PhD dissertation, University of Pretoria, Pretoria, South Africa.

Jeiyol E.N. Akpan S.B. & Tee, T.N. 2013. Gender Analysis of Access to Credit by Rural Small Scale Farmers in Benue State Nigeria. *American International Journal of Social Science*, **2**(6):-70-78

Jensen, M.C. & Meckling, W.H. 1976. Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics,* **3**(4): 305–360.

John, O. P. & Benet-Martinez, V. 2000. “Measurement: Reliability, construct validation, and scale construction.” Handbook of Research Methods in Social and Personality Psychology, edited by H.T. Reis and C.M. Judd. New York: Cambridge University Press, 2000, pp. 339-369.

Jöreskog, K.G. & Sörbom, D. 1984. *LISREL VI: Analysis of linear structural relationships by maximum likelihood, instrumental variables, and least squares methods*. Mooresville, IN: Scientific Software.

Jöreskog, K.G. & Wold, H.O.A. 1982. The ML and PLS techniques for modeling with latent variables: Historical and comparative aspects. In H.O.A. Wold & K.G. Jöreskog (Eds.), Systems under indirect observation, part I (pp. 263–270). Amsterdam: North-Holland.

Kaaria, S., Osorio, M., Wagner, S. & Gallina, A. 2016. Rural women’s participation in producer organizations: An analysis of the barriers that women face and strategies to foster equitable and effective participation. *Journal of Gender, Agriculture and Food Security*, **1**: 148–167.

Kaplinsky, R. 2005. Globalisation, Poverty and Inequality: Between a Rock and a Hard Place. Cambridge: Polity Press.

Kaplinsky, R. & Morris, M. 2001. *A handbook for value chain research.* Working Paper prepared for the IDRC. Brighton, UK: Institute for Development Studies.

Kaplinsky, R. & Readman, J. 2001. *Integrating SMEs in global value chains: towards partnership for development*. Report prepared for UNIDO, Vienna.

Kaplinsky, R. 2000. Spreading the gains from globalisation: What can be learned from value chain analysis? *Journal of Development Studies*, **37**(2): 117–146.

Karlan, D. 2014. *Innovation, inclusion and trust: the role of non-profit organisations in microfinance*. [Online] Available: https://www.povertyactionlab.org/sites/default/files/publications/A.%20REPORT_Innovation_Inclusion_Trust_web.pdf. Accessed 06 March 2017.

Kassim, N.M. 2001. *Determinants of customer satisfaction and retention in the cellular phone market of Malaysia*. PhD thesis, Southern Cross University, Lisbon.

Key, N., Sadoulet, E. & de Janvry, A. 2000. Transactions costs and agricultural household supply response. *American Journal of Agricultural Economics,* **82**(2): 245–259.

Key, N. & Runsten, D. 1999. Contract farming, smallholders and rural development in Latin America: the organisation of agroprocessing firms and the scale of outgrower production. *World Development* , **27**(2): 381-401.

Kinnear, T.C., Taylor, J.R. & Johnson A. 1993. *Australian marketing research.* Sydney: McGraw-Hill.

Kock, N. 2015. One-tailed or two-tailed P-values in PLS-SEM? *International Journal of eCollaboration*, **11**(2): 1-7.

KPMG. 2013. The State of Agriculture in South Africa. KPMG South Africa Blog. [Online] Available at: http://www.sablog.kpmg.co.za/2013/12/State-Agriculture-South-Africa Accessed: 23 April 2015.

Kirsten J., Mapila, M. & Sourovi De, J.O. 2012. *Managing agricultural commercialization for inclusive growth in Sub-Saharan Africa*. Briefing Paper Number 1 | 2012 GDN Agriculture Policy Series. [Online] Available: https://econpapers.repec.org/paper/agsupaewp/206518.htm. Accessed 06 September 2015.

Kleven, H. & Kopczuk, W. 2009. 'Transfer program complexity and the take up of social benefits', National Bureau of Economic Research (NBER), Working Paper 14301.

Kline, R.B. 2011. *Principles and practice of structural equation modeling* (3rd ed.). New York: Guildford Press.

Knupfer, N.N. & McLellan, H. 1996. Descriptive research methodologies. In D.H. Jonassen (Ed.), *Handbook of research for educational communications and technology* (pp. 1196-1212). New York: Macmillan.

Lee, E.J. & Overby, J.W. 2004. Creating value for online shoppers: Implications for satisfaction and loyalty. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, **17**: 54–67.

Lee, J. & Gereffi, G. 2010. *Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries*. [Online] Available: http://www.pnas.org/content/109/31/12326.full.pdf. Accessed 06 September 2015.

Lee, J., Gereffi, G. & Beauvais, J. 2012. Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *Proceedings of the National Academy of Sciences of the United States of America,* **109**(31): 12326–12331.

Loader, R. & Hobbs, J.E. 1996. The hidden costs and benefits of BSE. *British Food Journal,* **98**(11): 26–35.

London, T., Ravi, A & Sateen, S. 2010. Creating mutual value: Lessons learned from ventures serving base of the pyramid producers. *Journal of Business Research,* **63**: 582–594.

Maas, P. 2007. *Customer value analysis in financial services*. [Online] Available: http://www.unisg.ch/~/media/internet/content/dateien/instituteundcenters/ivw/wps/wp36.pdf. Accessed 12 April 2016.

MacCallum RC, Austin JT. 2000. Applications of structural equation modeling in psychological research. *Annu. Rev. Psychol*. 51: 201–26.

Macharia, M.A., Mshenga, P.M., Ngigi, M., Gido, O.E. and Kiprop, K.J. 2014. "Effect of transaction costs on smallholder maize market participation: Case of Kwanza District, Trans Nzoia County, Kenya", *International Journal of Development and Sustainability,* 3 (4): 715-725.

Mabuza, M.L. 2013. *The institutional economics of cultivated mushrooms in Swaziland: a study on value chains, transaction costs and collective action*. Unpublished PhD dissertation, University of KwaZulu-Natal, Pietermaritzburg, South Africa.

Mabuza, M.L., Ortmann, G.F. & Wale, 2014. Effects of transaction costs on mushroom producers' choice of marketing channels: Implications for agricultural market access in Swaziland. *South African Journal of Economic and Management Sciences,* **17**(2): 209–219.

Maertens, M., Dries, L., Dedehouanou, F. & Swinnen, J. 2007. High value supply chains, food standards and rural households in Senegal. In J. Swinnen (Ed.), *Global supply chains, standards and the poor*. Chapter 13 (pp. 158-173). Wallingford: CABI Publishing.

Maertens, M. & Swinnen, J.F.M. 2009. Trade, standards and poverty: evidence from Senegal. *World Development,* **37**(1): 161–78.

Maghnati, F. Choon Ling, K. & Nasermoadeli, A. 2012. Exploring the relationship between experiential marketing and experiential value in the smartphone industry. *International Business Research*, **5**(11): 169–177.

Makhura, M. 2001. *Overcoming transaction cost barriers to market participation of smallholder farmers in the Northern Cape province of South Africa.* Unpublished PhD Thesis, University of Pretoria.

Makhura, M., Kirsten, J. & Delgado, C. 2001. *Transaction costs and smallholder participation in the maize market in the Northern province of South Africa*. Proceedings of the Seventh Eastern and Southern Africa Regional Conference, 11–15 February, Pretoria.

Makosa, D. 2015. Constraints and opportunities to upgrading Uganda's rice markets: A value chain approach. *Journal of Development and Agricultural Economics*, **7**(12): 386–399.

Malhotra, N.K. 1996. *Marketing research: An applied orientation* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Malhotra, N.K. 1999. *Marketing research: An applied orientation* (3rd ed.). New Jersey: Prentice Hall.

Maltsoglou, I. & Tanyeri-Abur, A. 2005. Transaction costs, institutions and smallholder market integration: potato producers in Peru. [Online] Available: ftp://ftp.fao.org/docrep/fao/008/ae876e/ae876e00.pdf. Accessed 10 May 2016.

Mano, H. & Oliver, R.L. 1993. Assessing the dimensionality and structure of the consumption experience: evaluation, feeling and satisfaction. *Journal of Consumer Research,* **20**: 451–466.

Marx, J. & Mynhard, R.H. 2011. The cost of compliance: the case of South African banks. *Corporate Ownership & Control,* 8(3):435-442.

Mathwick C., Malhotra, N. & Rigdon, E. 2001. Experiential value: conceptualization, measurement and application in the catalog and internet shopping environment. *Journal of Retailing*, **77**: 39–56.

Mattsson J. 1992. A service quality model based on an ideal value standard. *International Journal of Service Industry Management,* **3**(3): 18–33.

McColl, E., Jacoby, A., Thomas, L., Soutter, J., Bamford, C., Steen, N., Thomas, R., Harvey E, Garratt, A. & Bond, J. 2001. Design and use of questionnaires: A review of best practice applicable to surveys of health service staff and patients. *Health Technol Assess,* **5**(31): 1–256.

McColl, E., Meadows, K. & Barofsky I. 2003. Cognitive aspects of survey methodology and quality of life assessment. *Quality of Life Research,* **12**(3): 217–18.

McCullough, E.B., Pingali, L.P. & Stamoulis, K.G. 2008. Small farms and the transformation of food systems: An overview. In E.B. McCullough, L.P. Pingali & K.G. Stamoulis (Eds.), *The transformation of agri-food systems: globalisation, supply chains and smallholder farmers* (pp. 3−46). London: Food and Agriculture Organisation and Earthscan.

McDermott, G.A. 2007. The politics of institutional renovation and economic upgrading: recombining the vines that bind in Argentina. *Politics & Society,* **35**(1): 103–144.

Menard, S. 1995. *Applied logistic regression analysis*. Series: Quantitative applications in the social sciences (Vol. 106). Thousand Oaks: Sage.

Midgley, S.J.E. 2016. *Commodity value chain analysis for apples*. WWF-SA, South Africa. [Online] Available:

http://awsassets.wwf.org.za/downloads/wwf_pfu_commodity_report___apples__lowres_.pdf Accessed 16 April 2019.

Miller, C. & da Silva C. 2007. Value chain financing in agriculture. *Enterprise Development and Microfinance,* **18**: 95–108.

Miller, C. & Jones, L. 2010. *Agricultural value chain finance: tools and lessons*. Rugby: FAO and Practical Action Publishing.

Mitchell, J., Keane, J. & Coles, C. 2009. Trading Up: How a Value Chain Approach Can Benefit the Rural Poor. https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5656.pdf. Accessed 31 January 2020.

Monroe, K. 1990. *Pricing: making profitable decisions*. New York, NY: McGraw-Hill.

Ndimbwa, D. 2013. Determinants of cost to client in accessing rural financial services: a case of Zambia's Chongwe District. [Online] Available: http://repository.up.ac.za/handle/2263/50734. Accessed 10 October 2016.

North, D. 1987. Institutions, transaction costs and economic growth. *Economic Inquiry,* **25**(3): 419–428.

Moschandreas, M. 1997. The role of opportunism in transaction cost economics. *Journal of Economic Issues,* **31**(1): 39–57.

National Agricultural Marketing Council (NAMC). 2018. *South African fruit trade flow*. [Online] Available: https://www.namc.co.za/wp-content/uploads/2018/07/South-African-Fruit-flow-report-Mar-2018-Issue-29.pdf. Accessed 12 March 2019.

Netemeyer, R.G., Bearden, W.O. & Sharma, S. 2003. *Scaling procedures: Issues and applications*. Thousand Oaks, CA: Sage Publications.

Neuman, W.L. 2006. Social research methods: Qualitative and quantitative approaches. [Online] Available:http://letrunghieutvu.yolasite.com/resources/w-lawrence-neuman-social-research-methods_-qualitative-and-quantitative-approaches-pearson-education-limited-2013.pdf Accessed 15 March 2018.

North, D.C. & Thomas, R.P. 1973. The Rise of the Western World, Cambridge: Cambridge University Press.

Nunnally, J.C. 1978. *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Nunnally, J.C. & Bernstein, I.H. 1994. *Psychometric theory* (3rd ed.). New York: Mcgraw-Hill.

Obare, G., Omamo, S. & Williams, A. 2004. Smallholder production structure and rural roads in Africa: the case of Nakuru District, Kenya. *Agricultural Economics,* **28**(3): 245–254.

Oettle, N., Fakir S., Wentzel, W., Giddings, S. & Whiteside, M. 1998. *Encouraging sustainable smallholder agriculture in South Africa.* Agricultural Services Reform in Southern Africa. [Online] Available: http://www.eldis.org/fulltext/rsa.pdf. Accessed 15 September 2015.

Okoye, C., Abass, A., Bachwenkizi, B., Asumugha, G., Alenkhe B., Ranaivoson, R., Randrianarivelo, R., Rabemanantsoa, N. & Ralimanana, I. 2016. Effect of transaction costs on market participation among smallholder cassava farmers in Central Madagascar. *Cogent Economics & Finance,* **4**: 1–20.

Omamo, S. 1998. Transport cost and smallholder cropping choices: an application to Saiyaz District, Kenya. *American Journal of Agricultural Economics,* **80**(1): 116–123.

Onumah, G. 2003. *Improving access to rural finance through regulated warehouse receipt system in Africa*. [Online] Available: http://fr.afraca.org/download/general_rural_finance_publications/Regualted-Warehouse-Receipts-in-Africa-Improving-Access-to-Finance-Best-Practices-by-Gideon-Onumah.pdf Accessed 12 September 2015.

Oppenheim, A.N. 1992. *Questionnaire design, interviewing and attitude measurement* (2nd ed.). London: Pinter.

Oppong, S.H. 2013. The problem of sampling in qualitative research. *Asian Journal of Management Sciences and Education*, **2**(2):202-210.

Ouma, E., Jagwe, J., Obare, G. & Abele, S. Determinants of Smallholder Farmers' Participation in banana markets in Central Africa: The role of transaction costs. *Agricultural Economics*, 41(1): 111–122.

Owusu-Antwi, G. & Antwi, J. 2010. The analysis of the rural credit market in Ghana. *International Business and Economics Research Journal,* **9**(8):45-56.

Parasuraman, A. 1991. *Marketing research* (2nd ed.). Reading, Massachusetts: Addison Wesley.

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. 1988. SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, **64**(1): 12–40.

Park, C.W. & Lessig, V.P. 1977. Familiarity and its impact on consumer decision biases and heuristics. *Journal of Consumer Research*, **8**(2): 223–231.

Peachey, S. & Arora, S. 2016. *Customer at the centre: cost to customer framework*. Consultative Group to Assist the Poor (CGAP), unpublished report.

Pham, T.H. & Huang, Y.Y. 2015. The impact of experiential marketing on customer's experiential value and satisfaction: An empirical study in Vietnam hotel sector. *Journal of Business Management & Social Sciences Research*, **4**(1): 1-19

Pingali, P., Ricketts, K. & Sahn, D. 2015. Agricultural pathways to improved nutrition: getting policies right. [Online] Available: http://www.jblumenstock.com/files/jsde/Pingali.pdf. Accessed 10 October 2016.

Pingali, P., Y. Khawaja, and M. Meijer. 2005. "Commercializing Small Farms: Reducing Transaction Costs." ESA Working Paper No. 05-08. Rome, Italy: Food and Agriculture Organization of the United Nations

Porter, M.E. 1985. *Competitive Advantage*. New York: The Free Press.

Poulton, C., Dorward, A. & Kydd, J. 2010. The future of small farms: new directions for services, institutions, and intermediation. *World Development*, **38**(10): 1413–1428.

Raikes, P., Jensen, M.F. & Ponte, S. 2000. Global commodity chain analysis and the French filière approach: comparison and critique. *Economy and Society,* **29**(3): 390−417.

Renkow, M., Hallstrom, D. & Karanja, D. 2004. Rural infrastructure, transactions costs and market participation in Kenya. *Journal of Development Economics*, **73**(1): 349–367.

Roldán, J.L. & Sánchez-Franco, M.J. 2012. Variance-based structural equation modeling: Guidelines for using partial least squares. In Research Methodologies, Innovations and Philosophies in Software Systems Engineering AND Information Systems; Mora, M., Gelman, O., Steenkamp, A., Raisinghani, M.S., Eds.; IGI Global: Hershey, PA, USA, pp. 193–221.

Roig, J.C.F., Garcia, J.S., Tena, M.A.M. & Monzonis, J.L. 2006. Customer perceived value in banking services. *International Journal of Bank Marketing*, **24**: 266–283.

Sadoulet, E. & de Janvry, A. 1995. *Quantitative development policy analysis*. Baltimore: Johns Hopkins University Press.

Sandford, D.C. 1973. *Hidden costs of taxation*. London: Institute for Fiscal Studies.

Sandrey, R. & Vink, N. 2008. Deregulation, trade reform and innovation in the South African agricultural sector. *General Papers,* **8**(4): 219–255.

Sánchez-Fernández, R. & Ángeles Iniesta-Bonillo, M. 2007. "The concept of perceived value: a systematic review of the research," *Marketing Theory,* 7: 427-451.

Sánchez, J., Callarisa, L., Rodríguez, R.M. & Moliner, M.A. 2006. Perceived value of the purchase of a tourism product. *Tourism Management*, **27**: 394–409.

SATI (South African Table Grape Industry). 2018. *Statistical booklet*. Paarl: SATI. [Online] Available: http://www.satgi.co.za/Media/Default/Documents/Booklets/SATI%20STATISTIEKE%202018%20_FA_LOW%20RESOLUTION.pdf. Accessed 12 March 2019.

Schiffman, L.G. & Kanuk, L.L. 1987. *Consumer Behavior* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Schmitt, B. 1999. Experiential marketing. *Journal of Marketing Management,* **15**(1–3): 53–67.

Schuman, H., Kalton, G. & Ludwig, J. 1983. Context and contiguity in survey questionnaires. *Public Opinion Quarterly,* **47**: 112–15.

SEDA. 2012. *Research on the performance of the agricultural sector*. . [Online] Available: http://www.seda.org.za/Publications/Publications/Research%20on%20the%20Performance%20of%20the%20Agriculture%20Sector.pdf. Accessed 16 September 2018.

Sekaran, U. 2000. *Research method for business: A skill building approach.* John Wiley and Sons, New York

Serdula, M.K., Mokdad, A.H., Pamuk, E.R, Williamson, D.F. & Byers T. 1995. Effects of question order on estimates of the prevalence of attempted weight loss. *American Journal of Epidemiology,* **142**(1): 64–67.

Severine, D., Lazaro, E., Kledal, P., Karantininis, K., Sibuga, K. & Mbapila, S. 2014. *Why transaction costs impede smallholder farmers' participation into export organic markets*. [Online] Available: http://orgprints.org/23644/1/23644%20Donasian_owc_scientific_track_2014_Trnsaction_costs_impede_smallholder_farmers'_participation_in_value_chain_MM.pdf. Accessed 10 May 2016.

Shange N. 2014. Analysis of the challenges and opportunities for smallholder farmer value chain integration in the Western Cape: A public and private sector organisation perspective. [Online] Available: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.971.1329&rep=rep1&type=pdf. Accessed 11 September 2015.

Shank, J.K. & Govindarajan, V. 1992. Strategic cost management: the value chain perspective. *Journal of Management Accounting Research*, **4**(1): 179–197.

Sharma, J.P. Upadhyay, S. Chaturvedi, V.K. & Bharadwaj, T. 2014. Enhancing Farm Profitability through Food Processing and Value Addition. In: Shukla, J. P. (Ed.). Technologies for Sustainable Rural Development: Having Potential of Socioeconomic Upliftment (TSRD-2014), published by Allied Publisher Pvt. Ltd., India. p. 88.

Sharma, P.N. & Kim, K.H. 2013. A comparison of PLS and ML bootstrapping techniques in SEM: a Monte Carlo study New perspectives in partial least squares and related methods (New York: Springer) pp 201-208.

Sheth, J.N., Newman, B.I. & Gross, B.L. 1991a. *Consumption values and market choices: theory and applications*. Cincinnati, OH: South-Western Publishing Co.

Sheth, J.N., Newman, B.I. & Gross, B.L. 1991b. Why we buy what we buy: A theory of consumption values. *Journal of Business Research*, **22**(2): 159–170.

Shepherd, A. 1997. Market Information Services: Theory and Practice. FAO (Food and Agriculture Organization), Rome.

Sirken, M., Hermann, D., Schechter, S. & Schwarz, N. 1999. In J. Tanur & R. Tourangeau (Eds.), *Cognition and survey research*. New York: Wiley.

Sjauw-Koen-Fa, A.R. 2012. *Framework for an inclusive food strategy: co-operatives key for smallholder inclusion into value chains*. Economic Research Department of the Rabobank Group, The Netherlands. [Online] Available: https://www.academia.edu/16332064. Accessed: 11 April 2017.

Smith, A. 2007. *An inquiry into the nature and causes of the wealth of nations*. Edited by S. M. Soares. MetaLibri, Laousane, Random House, Inc.

Spio, K. & Groenewald, J.A. 1997. Rural financial markets: An overview, *Agrekon,* **36**(2):121-138.

Staal, S., Delgado, C. & Nicholson, C. 1997. Smallholder dairying under transactions costs in East Africa. *World Development,* **25**(5): 779–794.

Stewart, D. & Love, W. 1968. A general canonical correlation index. *Psychological Bulletin*, **70**: 160–163.

Stigler, G.J. 1961. The economics of information. *Journal of Political Economy,* **69**(3): 213–225.

Stone, M. 1974. Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society*, **36**(2): 111–147.

Sudman, S. & Bradburn, N. 1982. *Asking questions: a practical guide to questionnaire design*. San Francisco, CA: Jossey-Bass.

Sweeney, J.C. 2008. An integrated model of value equity in spectator sports: conceptual framework and empirical results. [Online] Available: http://diginole.lib.fsu.edu/islandora/object/fsu:175999/datastream/PDF/view. Accessed 12 April 2016.

Sweeney, J.C. & Soutar, G. 2001. Consumer perceived value: the development of multiple item scale. *Journal of Retailing*, **77**(2): 203–220.

Swinnen, J.F.M. (Ed.). 2005. The dynamics of vertical coordination in agrifood chains in Eastern Europe and Central Asia. [Online] Available:

https://openknowledge.worldbank.org/bitstream/handle/10986/7518/370500ECSSD0WP1Eastern0ECA01PUBLIC1.pdf?sequence=1&isAllowed=y. Accessed 12 April 2017.

Swinnen, J.F.M., Colen, L. & Maertens, M. 2013. Constraints to smallholder participation in high-value agriculture in West Africa. [Online] Available: http://www.fao.org/docrep/018/i3222e/i3222e09.pdf. Accessed 12 April 2016.

Swinnen, J.F.M. & Gow, H.R. 1999. Agricultural credit problems and policies during the transition to a market economy in Central and Eastern Europe. *Food Policy*, **24**(1): 21–47.

Tanwir, M. & Safdar, T. 2013. The rural woman's constraints to participation in rural organizations. *Journal of International Women's Studies,* **14** (3): 210 -229.

Tavakol, M. & Dennick, R. 2011. Making sense of Cronbach's Alpha. *International Journal of Medical Education,* **2**: 53–55.

Tenenhaus, M., Vinzi, V.E., Chatelin, Y.M. & Lauro, C. 2005. PLS Path Modeling. *Computational Statistics and Data Analysis*, **48**(1): 159–205.

Teo, T. & Lee, C. B. (2010). Examining the efficacy of the Theory of Planned Behavior (TPB) to understand pre-service teachers' intention to use technology. In C.H. Steel, M.J. Keppell, P. Gerbic & S. Housego (Eds.), Curriculum, technology & transformation for an unknown future. Proceedings ascilite Sydney 2010 (pp.968-972)

Thompson, B. 2005. *Exploratory and confirmatory factor analysis: understanding concepts and applications*. Washington, DC: American Psychological Association.

Trienekens, J.H. 2011. Agricultural value chains in developing countries: a framework for analysis. *International Food and Agribusiness Management Review*, **14**(2): 51–82.

Tullock, G. 1971. The cost of transfers. Kyklos. In: James M. Buchanan, Robert D. Tollison, & Gordon Tullock (eds.), Toward a Theory of the Rent-Seeking Society. College Station TX: Texas A&M Press, pp. 269-282.

Tullock, Gordon (1967). The welfare costs of tariffs, monopolies and theft. Western Economic Journal, 5 (3): 224-332. Reprinted in Roger D. Congleton, Arye L. Hillman & Kai A. Konrad (eds.) (2008), Forty Years of Research on Rent Seeking 1 - Theory of Rent Seeking, Springer, Heidelberg, pp. 45-53.

Van Oppen, C., Odekerken-Schröder, G. & Wetzels, M. 2005. Experiential value: a hierarchical model, the impact on e-loyalty and a customer typology. [Online] Available: https://core.ac.uk/download/pdf/22861127.pdf Accessed 3 March 2016.

United Nations Industrial Development Organisation (UNIDO). 2009. *Agro-value chain analysis and development: the UNIDO approach*. Staff working paper. Vienna: UNIDO.

Van Rooyen, C.J. & Jooste, A. 1996. Constraints to small farmer development in the red meat industry. Invited paper, Red Meat Producers Conference, Roodevalleir, Pretoria, 27 March 1997.

Varshneya, G. & Das, G. 2017. Experiential value: multi-item scale development and validation. *Journal of Retailing and Consumer Services,* **34**: 48–57.

Victoria, B., Mudimu, G. & Moyo, T. 2012. Status of agricultural and rural finance in Zimbabwe. [Online] Available: http://www.finmark.org.za/wp-content/uploads/2016/01/Rep_Status-of-RAFin_Zim.pdf. Accessed 18 June 2015.

Wang, C.Y. & Lin, C.H. 2010. A study of the effect of tv drama on relationships among tourists' experiential marketing, experiential value and satisfaction. *The International Journal of Organizational Innovation*, **2**(3): 107-123.

Weatherspoon, D. & Reardon, T. 2003. The rise of supermarkets in Africa: implications for agrifood systems and the rural poor. *Development Policy Review,* **21**: 333–355.

Webber, C.M. & Labaste, P. 2010. *Building competitiveness in Africa's agriculture: a guide to value chain concepts and applications*. Washington, DC: World Bank.

Wiggins, S. and Keats, S. (2013). Leaping and Learning: Linking smallholders to markets in Africa. London, Agriculture for Impact, Imperial College and Overseas Development Institute.

Wiggins, S., Kirsten, J. & Llambí, L. 2010. The future of small farms. *World Development,* **38**(10): 1341–1348.

Wild, J. & Diggines, C. 2013. *Marketing research* (2nd ed.). Cape Town: Juta.

Williams, P., & Soutar, G.N. 2009. Value, satisfaction and behavioral intentions in an adventure tourism context. *Annals of Tourism Research*, **36**(3): 413–438.

Williamson, Oliver E. 1971. "The Vertical Integration of Production: Market Failure Considerations," *American Economic Review*, **61**(5): 112-123.

Williamson, O.E. 1975. *Markets and hierarchies: analysis and anti-trust implications*. New York: Free Press.

Winter-Nelson, A. & Temu, A. 2002. Institutional adjustment and transaction costs: product and inputs markets in the Tanzanian coffee system. *World Development,* **30**(4): 561–574.

Winters, P., Simmons, P. & Patrick, L. 2005. Evaluation of a hybrid seed contract between smallholders and a multinational company in East Java, Indonesia. *The Journal of Development Studies,* **41**(1): 62–89.

Wixom, B.H. & Watson, H.J. 2001. An empirical investigation of the factors affecting data warehousing success. *MIS Quarterly*, **25**(1): 17-32

Wong, H.L. & Tsai, M.C.. 2010. The effects of service encounter and experiential value on consumer purchasing behavior. *WSEAS Transactions on Business and Economics*, **2**(7): 59–68.

Wong, T.C. 1999. *Marketing research.* Oxford: Butterworth-Heinemann.

Woo, H.K.H. 1992. *Cognition, value and price: a general theory of value*. Ann Arbor, MI: University of Michigan Press.

Woodall, T. 2003. Conceptualising 'value for the customer': an attributional, structural and dispositional analysis. *Academy of Marketing Science Review,* **12**: 1–42.

Woodruff, R.B. 1997. Customer value: the next source of competitive advantage. *Journal of the Academy of Marketing Science*, **25**(2): 139–153.

Word Bank (2013). South Africa Economics Update. Focus on financial Inclusion. Africa Region Poverty Reduction & Economic Management, issue 5. [Online] Available: http://www.worldbank.org/content/dam/Worldbank/document/Africa/South%20Africa/Report/south-africa-economic-update-2013.05.pdf . Accessed: 14 April 2015.

World Bank. 2008. *World Development Report 2008: Agriculture for Development*. Washington DC: World Bank.

Wu, C.H.J. & Liang, R.D. 2009. Effect of experiential value on customer satisfaction with service encounters in luxury-hotel restaurants. *International Journal of Hospitality Management*, **28**(4): 586–593.

Yang, Z.Y. & He, L.Y. 2011. Goal, customer experience and purchase intention in a retail context in China: An empirical study. *African Journal of Business Management*, **5**(16): 6738–6746.

Yuan, Y.H. & Wu, C.K. 2008. Relationships among experiential marketing, experiential value, and customer satisfaction. *Journal of Hospitality & Tourism Research*, **32**(3): 387–410.

Zhang, L. Chen, X. & Suo, Y. 2017. Interrelationships among critical factors of work flow reliability in lean construction, *Journal of Civil Engineering and Management,* 23 (5): 621–632.

Zeithaml, V.A. 1988. Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence. *Journal of Marketing*, **52**: 2–22.

Zikmund, W.G. 2000. *Exploring marketing research* (7th ed.). Fort Worth, TX: Dryden Press.

Zook, D., Deelder, W. & Denny-Brown, C. 2013. Local bank financing for smallholder farmers: A $9 billion drop in the ocean. [Online] Available: http://www.globaldevincubator.org/smallholderfinance/Initiative_for_Smallholder_Finance_Briefing_1.pdf. Accessed: 10 April 2010.

APPENDIX A:
SURVEY QUESTIONNAIRE: FARMERS

SURVEY QUESTIONNAIRE: FARMERS

Dear Participant,

My name is Mfusi Mjonono, a PhD student at the University of Stellenbosch Business School. Thank you for your time to help me fulfil my study requirements by completing this questionnaire.

The purpose of this survey is **"investigating value chain financing and understanding of the cost and value to the farmers participating in selected value chains in the Western Cape province of South Africa".** The information being collected is purely for research purposes and ethical issues will be upheld at all times in the dissemination of results. The University of Stellenbosch has strict ethical guidelines concerning this kind of research and the conduct of this research is guided by those guidelines.

If the space provided is insufficient for your response to any of the questions, please use a separate sheet of paper(s) and attach it to the questionnaire.

To verify the authenticity and ethical issues of this research project, please contact Ms Clarissa Graham [cgraham@sun.ac.za; 021 918 4111] at the University of Stellenbosch Business School.

Upon completion, kindly return the questionnaire to me.

Yours faithfully,
Mfusi Mjonono

Contact details:
Mfusi Mjonono: Cell 078 456 2973, Email: mmjonono@gmail.com/ 13744488@sun.ac.za
Nyankomo Marwa: Cell 07749453141, nyankomo@sun.ac.za

SECTION A: GENERAL INFORMATION

Instructions: Please tick the appropriate box.

1. What is your age in years?

Age	Code	Tick
18 - 25	1	
26 - 35	2	
36 - 45	3	
46 - 55	4	
55+	5	

2. What is your gender?

Gender	Code	Tick
Male	1	
Female	2	

3. What is your highest level of education?

Level of education	Code	Tick
Primary School	1	
Matric/High School	2	
Diploma	3	
B Tech/Bachelor's Degree	4	
Post graduate Degree	5	
No formal education	6	

4. What is your current employment status?

Employments status	Code	Tick
Employed Full-time	1	
Employed Part-time	2	
Self-employed/Farmer	3	
Retired	4	
Unemployed	5	
Student	6	

5. What is your marital status?

Marital status	Code	Tick
Single	1	
Married	2	
Separated/divorced	3	
Widowed	4	
Long term relationship	5	

6. How long have you been in the farming business?

Number of years	Code	Tick
Between 1-3 years	1	
Between 3-5 years	2	
Above 5 years	3	

7. What is your personal gross monthly income in Rands?

Personal gross income	Code	Tick
Less than 1500	1	
1501 - 3000	2	
3001 - 4500	3	
More than 4500	4	

8. What is your household gross monthly income in Rands?

Household gross income	Code	Tick
Less than 2500	1	
2501 - 5000	2	
5001 - 6500	3	
More than 6500	4	

9. What is your gross farm income/turnover per annum in Rands?

Farm income/turnover	Code	Tick
Less than 50 000	1	
50 000 – 100 000	2	
100 000 – 500 000	3	
500 000 – 1 000 000	4	
More than 1 000 000	6	

SECTION B: PRODUCTION AND MARKETING

10. What type of products do you produce?

Enterprise	**Fruit Type**	**Tick**	**Land size (Planted)**
Pome fruit	Apple		
	Pears		
Stone fruit	Peaches		
	Plums		
	Apricots		
	Nectarines		
Table grapes	Table grapes		

11. Where do you sell your products?

	Local Market					**International market**	
Enterprise	**Fruit Type**	**Informal**	**%**	**Formal**	**%**		%
Pome fruit	Apple						
	Pears						
Stone fruit	Peaches						
	Plums						
	Apricots						
	Nectarines						
Table grapes	Table grapes						

12. How do you sell your product?

Yourself	
Through an agent	

SECTION C: FINANCING

13. Does your farm business have a bank account with any financial institution (Yes or No)? _____

14. What facilities does your farm business have with the financial institution?

Type	Code	Tick
Mortgage	1	
Term loans (e.g. for implements)	2	
Overdraft	3	
Insurance	4	
Vehicle finance	5	
Other specify:	6	
	7	
	8	

15. Have you received any assistance for your farm business from any institution/organisation or stakeholder? (Yes or No)? _____

16. If yes, on question 15 above, what type of assistance did your farm business receive?

Institution/organisation/stakeholder	Support received

17. Have you received any financial assistance for your farm business (Yes or No)?

_____

18. If yes, on question 17 above, from which institution(s) and what type of financial assistance was received, a Grant or loan? *(NB: Institutions could be bank finance or non-bank finance institutions)*

_____

_____

_____

_____

19. If finance was received from a non-bank finance institution, what were the reasons for approaching the non-bank-finance institution than the traditional bank finance institution?

_____

_____

_____

_____

_____

_____

20. How much did you ***apply*** for in terms of grant and or a loan?

Grant amount	**Code**	**Tick**	**Loan amount**	**Code**	**Tick**
Less than 50 000	1		Less than 50 000	1	
50 000 – 100 000	2		50 000 – 100 000	2	
100 000 – 500 000	3		100 000 – 500 000	3	
500 000 -1 000 000	4		500 000 -1 000 000	4	
More than 1 000 000	5		More than 1 000 000	5	

21. How much did you ***receive*** in terms of grant and or a loan?

Grant amount	**Code**	**Tick**	**Loan amount**	**Code**	**Tick**
Less than 50 000	1		Less than 50 000	1	
50 000 – 100 000	2		50 000 – 100 000	2	
100 000 – 500 000	3		100 000 – 500 000	3	
500 000 -100 000 00	4		500 000 -100 000 00	4	
More than 1 000 000	5		More than 1 000 000	5	

22. How much did you ***receive*** in terms of grant and or a loan in the past five years?

Grant amount					Loan amount				
2013	**2014**	**2015**	**2016**	**2017**	**2013**	**2014**	**2015**	**2016**	**2017**

23. If a loan was received, how much interest was charged for your loan?

Services	Code	Tick
5-9%	1	
10-15%	2	
15-20%	3	
Above 20%	4	

24. What was the loan or grant used for?

Loan amount	Code	Tick
Production inputs	1	
By livestock	2	
For infrastructure	3	
Fixed improvements	4	
Other: Specify	5	
	6	

25. What were the requirements from the mentioned institution(s) when you applied for finance? *(NB: Institutions could be bank finance or non-bank finance institutions)*

Bank finance institution			Non-Bank finance institution		
Requirement	**Code**	**Tick**	**Requirement**	**Code**	**Tick**
Proof of Income	1		Proof of Income	1	
Banks Statements	2		Banks Statements	2	
Identity documents	3		Identity documents	3	
Business Plan	4		Business Plan	4	
Financial Statements	5		Financial Statements	5	
Proof of address	6		Proof of address	6	
Tax clearance certificate	7		Tax clearance certificate	7	
Production records	8		Production records	8	
Other: Specify	9		Other: Specify	9	
	10			10	
	11			11	

26. What do you think about these requirements?

_____

_____

_____

27. In the instance of a loan acquired from any of these institutions, were you asked for any collateral for your loan (Yes or No)? _____ (If yes, proceed to question 28 below, if No proceed to question 31 below).

28. Which collateral was asked by the finance institution for your loan?

Type of collateral	**Code**	**Tick**
Land	1	
Cession on the crop	2	
Livestock	3	
Vehicle(s)	4	
Machinery and equipment	5	
Other: specify	6	
	7	
	8	

29. What do you think about the collateral asked by these institutions?

Collateral	**Code**	**Tick**
Reasonable	1	
Unreasonable	2	

30. If collateral is unreasonable, what do you think should be done?

a) By government

_____

_____

_____

b) By the bank

_____

_____

_____

31. Has your farm business been denied a loan by any finance institution (Yes or No)? _____ (If No, proceed to question 32 below, if Yes proceed to question 33 below).

32. In the instance of a loan acquired from any of these institutions, what were the repayment terms?

_____

_____

_____

_____

_____

_____

_____

33. What were the reasons you were denied a loan?

Type	Code	Tick
My farm business has just started	1	
No business plan submitted	2	
Affordably/inability to pay	3	
No financial statements	4	
Other: Specify	5	
	6	
	7	
	8	
	9	

34. What do you think are the biggest obstacles/challenges to access finance for agricultural businesses?

Obstacle	Code	Tick
Repayment ability	1	
High interest rates	2	
Lack of collateral	3	
Lack of understating of loan officers	4	
Lack of understating of loan requirements	5	
Bureaucracy	6	
Rigid/inflexible payment terms	7	
Other: Specify	8	
	9	
	10	
	11	
	12	

SECTION D: TRANSACTION COSTS

35. Please indicate by ticking the cost incurred by your farm business for being part of the value chain.

Type	Code	Tick
Certification costs & Audit fees (GAP, SIZA etc.)	1	
Monitoring costs	2	
Product inspection costs	3	
Bargaining costs	4	
Agent cost	5	
Contract fees	6	
Travelling costs	7	
Licensing fees	8	
Storage and handling costs	9	
Financial (Accounting/Audit) fees	10	
Legal fees	11	
Communication fees	12	
Membership fees	13	
Other: Specify	14	
	15	
	16	

36. Please indicate by ticking the costs incurred by your farm business during the last loan/grant application.

Loan related costs	Code	Tick
Application costs	1	
Administration and processing costs	2	
Loan monitoring costs	3	
Insurance costs	4	
Bargaining costs	5	
Stationery cost	6	
Legal costs	7	
Travelling costs	8	
Food cost	9	
Other: Specify	10	
	11	
	12	

37. In the process of applying for a loan/grant, did your farm business seek the services or advice from any of the following experts or individuals and how much did it cost?

Services	Code	Tick	Cost of services or advice
Lawyer	1		
Accountant	2		
Friend	3		
Agency	4		
Relative	5		
Association	6		
Other: Specify	7		
	8		

SECTION E: VALUE/BENEFITS

38. By being linked or participating in the value chain, did you benefit from the following?

Benefits	Code	Tick
Planting new crop varieties	1	
Compliance with food safety standards	2	
Improved production practices	3	
Improved product quality	4	
Improved farming practices	5	
Increased yield	6	
Improved pest control	7	
Better marketing strategy	8	
Better packaging	9	
New technology	10	
Management Skills	11	
Relationships/networks	12	
Access to finance	13	
Access to a variety of financers	14	
Other: Specify	15	
	16	
	17	

SECTION F: PERCEIVED COSTS

39. **Perceptions:** The following statements deal with the perceptions of costs experienced/incurred in participating in the value chain. Please, show the extent to which these statements reflect your perception of costs experienced/incurred in participating in the value chain.

Please tick the appropriate box.

Psychological costs (PC):					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***makes me feel stressed*** due to the demand for issues like compliance, product quality, delivery targets and possibility of losing money. ***(PC1)***					
Participating in the value chain ***makes me afraid*** due to commitments and compliance issues. ***(PC2)***					
Participating in the value chain ***puts me at risk*** of losing money due to added costs associated with compliance. ***(PC3)***					
Participating in the value chain ***makes me feel uncomfortable/unrelaxed*** due to commitments and compliance issues. ***(PC4)***					

Regulatory and compliance costs (RCC):					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***induces/makes me pay for certification costs. (RCC1)***					
Participating in the value chain ***induces/makes me pay for monitoring costs (RCC2)***					
Participating in the value chain ***induces/makes me pay for product inspection costs. (RCC3)***					
Participating in the value chain ***induces/makes me pay for compliance***					

audit fees. ***(RCC4)***					
Participating in the value chain ***induces/makes me pay for storage costs*** ***(RCC5)***					

Economics costs (EC):					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***induces/makes me spend more time and effort in bargaining.*** ***(EC1)***					
Participating in the value chain ***induces/makes me spend more resources on agents, contracts & compliance issues*** ***(EC2)***					
Participating in the value chain ***induces/makes me pay spend more time & effort negotiating contracts*** ***(EC3)***					
Participating in the value chain ***induces/makes me lose more opportunities due to time spent on travelling and compliance issues.*** ***(EC4)***					
Participating in the value chain ***induces/makes me pay more for contracts and agents.*** ***(EC5)***					
Participating in the value chain ***induces/makes spend more time and effort in communicating with stakeholders in the chain.*** ***(EC6)***					

Direct Financial Costs (DFC):					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***induces/makes me pay licensing costs.*** ***(DFC1)***					
Participating in the value chain ***induces/ makes me pay travel costs.*** ***(DFC2)***					

Participating in the value chain ***induces/ makes me pay for storage and handling costs.*** ***(DFC3)***					
Participating in the value chain ***induces/makes me pay insurance costs.*** ***(DFC4)***					
Participating in the value chain ***induces/make me pay (Financial) audit fees.*** ***(DFC5)***					
Participating in the value chain ***induces/makes me pay product inspection costs.*** ***(DFC6)***					
Participating in the value chain ***induces/increases legal fees.*** ***(DFC7)***					
Participating in the value chain ***induces/makes me pay communication costs.*** ***(DFC8)***					

Social and cultural costs (SCC):					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***makes me feel restricted/excluded due to my sex status.*** **(SCC1)**					
Participating in the value chain ***makes me feel restricted/excluded due my religious status.*** **(SCC2)**					
Participating in the value chain ***makes me feel restricted/excluded due my cultural status.*** **(SCC3)**					
Participating in the value chain ***makes me feel restricted/excluded due to my age.*** **(SCC4)**					
Participating in the value chain ***makes me feel socially restricted/excluded due to my educational level.*** **(SCC5)**					
Participating in the value chain ***makes me feel socially restricted/excluded due to my economic status.*** **(SCC6)**					

Cost to participate (CP):					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5

Stress, fear, risk due to issues like compliance, product quality, delivery targets affect my participation in the value chain. **(CP1)**					
Regulatory and compliance costs such as certification costs, monitoring, product inspection and audit cost affect my meaningful participation in the value chain**. (CP2)**					
My participating in the value chain is influence by economics costs such agent costs, contract fees, bargaining costs as well as interest. (**CP3)**					
Costs such as licencing, storage and handling, insurance, travelling, audit and product inspection influence my full participation into the value chain **(CP4)**					
My sex status, religion, culture restrict me from participating in the value chain **(CP5)**					
Costs affect my meaningful participation in the value chain **(CP6)**					
Reducing the cost in the value chain could positively affect my meaningful participation in the value chain **(CP7)**					
Costs in the value chain affect my overall participation in the value chain **(CP8)**					

SECTION G: PERCEIVED VALUE

40. Perceptions: The following statements deal with the perceptions of the value experienced/gained in participating in the value chain. Please, show the extent to which these statements reflect your perception of the value experienced/gained in participating in the value chain.

Please tick the appropriate box.

EXPERIENCIAL VALUE

Experiential value: Feel (FV)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
The experience I gained by participating in the value chain ***makes me feel comfortable. (FV1)***					
The experience I gained by participating in the value chain ***gives me joy. (FV2)***					
The experience I gained by participating in the value chain ***makes me feel positive emotion. (FV3)***					
The experience I gained by participating in the value chain ***makes me feel good. (FV4)***					
The experience I gained by participating in the value chain ***makes me relax. (FV5)***					
The experience I gained by participating in the value chain ***makes me feel satisfied.***					

Experiential value: Think (TV)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***stimulates my thinking. (TV1)***					
The experience I gained by participating in the value chain ***creates curiosity (TV2)***					
Participating in the value chain ***stimulates my interest to know more. (TV3)***					

Participating in the value chain ***deepens my knowledge*** ***(TV4)***					
The experience I gained by participating in the value chain ***creates new interests*** ***(TV5)***					
Participating in the value chain ***deepens my understanding*** ***(TV6)***					

Experiential value: Act (AV)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***allows me to share experiences with friends and fellow farmers.*** ***(AV1)***					
Participating in the value ***chain stimulates exchange of my experience.*** ***(AV2)***					
Participating in the value chain ***stimulates continued interest in learning more.*** ***(AV3)***					
Participating in the value chain ***allows me to share my knowledge.*** ***AV4)***					
Participating in the value chain ***allows me improve my overall farming experience.*** ***(AV5)***					

Experiential value: Relate (RV)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participation in the value chain ***allows/made me to get to know new friends.*** ***(RV1)***					
Participation in the value chain ***allows/made me build new networks*** ***(RV2)***					
Participating in the value chain ***made me find people with common interests*** ***(RV3)***					
Participation in the value chain ***allows me to get recognition*** ***(RV4)***					
Experiential value: Return on Investment (RoI)					

Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***gives value for money.*** ***(RoI1)***					
Participating in the value chain ***makes me feel I have received more than I have paid for*** ***(RoI2)***					
The time of participating in the value chain is worth it for the experience ***(RoI3)***					
The effort of participating in the value chain is worth it for the experience ***(RoI4)***					
The benefits of participating in the value chain are worth it ***(RoI5)***					

Experiential value: Novelty (NV)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***gives me authentic experience.*** **(NV1)**					
Participating in the value chain ***makes me feel like am doing something new and different***. **(NV2)**					
Participating in the value chain ***gave me a chance to meet interesting people***. **(NV3)**					
Participating in the value chain ***stimulated or challenged me in some way.*** **(NV4)**					

Experiential value: Farmer satisfaction (FS)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
I am satisfied for being part of the value chain. **(FS1)**					
I am satisfied with the services I am getting in the value chain. **(FS3)**					

I made a right decision for choosing to be part of the value chain. **(FS3)**					
Participating in the value chain ***stimulated or challenged me in some way.*** **(FS4)**					
Overall, I am totally satisfied with experiences I received for being part of the value chain. **(FS5)**					

Experiential value (EV1)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***allowed me to gain good experience*** **(EV1)**					
Participating in the value chain ***allowed to gain more experience*** **(EV2)**					
I am happy with the experience I gained for being part of the value chain. **(EV3)**					
Participating in the value chain gives me authentic experience. **(EV4)**					
Participating in the value chain makes me feel like am doing something new and different. **(EV5)**					
Participating in the value chain gave me a chance to meet interesting people. (**(EV6)**					
Participating in the value chain stimulated or challenged me in some way. (EV7)					

FUNCTIONAL VALUE

Functional value: Product (FVP)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***induces/made me plant new crop varieties*** ***(FVP1)***					
Participating in the value chain					

induces/made me comply with food safety standards (FVP2)					
Participating in the value chain ***induces/made me improve my production practices (FVP3)***					
Participating in the value chain ***induces/made me improve my product(s) quality (FVP4)***					

Functional value: Process (FVPr)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***is improving/improved my farming practices. (FVPr1)***					
Participating in the value chain ***is increasing/increased my yields. (FVPr2)***					
Participating in the value chain ***induces me to improve/ improved my pest control processes/approach. (FVPr3)***					
Participating in the value chain ***induces/made me have better marketing strategy. (FVPr4)***					
Participating in the value chain ***induces/made me have better packaging. (FVPr5)***					

Functional value: Function (FVF)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***induces/made me employ new technology on my farm. (FVF1)***					
Participating in the value chain ***induces/made me improve on my management skills. (FVF2)***					
Participating in the value chain ***induces/made me form relationships/ new networks (FVF3)***					
Participating in the value chain ***induces/made me to have a brand for my products (FVF4)***					

Functional value: Access to Finance (FVAF)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***makes/made it easy to have access to finance (FVAF1)***					
Participating in the value chain ***gives/gave me access to different financiers (FVAF2)***					
Participating in the value chain ***makes/made me meet the financing requirements (FVAF3)***					
Participating in the value chain ***gave me access to affordable financing options (FVAF4)***					
Participating in the value chain ***allowed me to access finance on time (FVAF5)***					

Functional value: (FV)					
Items	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
	1	2	3	4	5
Participating in the value chain ***makes/made me to improve my overall farm production (FV1)***					
Participating in the value chain ***makes/made me to improve my overall production processes (FV2)***					
Participating in the value chain ***makes/made me to improve my functions on the farm (FV3)***					
Participating in the value chain ***increased my financing options and overall access to finance (FV4)***					
With value I received from improved product, process, functions and access to finance processes, I made a right choice to be part of the value chain ***(FV5)***					

The end.

Thank you for participating in this survey.

APPENDIX B:

SURVEY QUESTIONNAIRE: INSTITUTIONS/STAKEHOLDERS

Dear Participant,

My name is Mfusi Mjonono, a PhD student at the University of Stellenbosch Business School. Thank you for your time to help me fulfil my study requirements by completing this questionnaire.

The purpose of this survey is **"Investigating value chain financing and understanding of the cost and value for the farmers participating in selected value chains in South Africa".** The information being collected is purely for research purposes and ethical issues will be upheld at all times in the dissemination of results. The University of Stellenbosch has strict ethical guidelines concerning this kind of research and the conduct of this research is guided by those guidelines.

If the space provided is insufficient for your response to any of the questions, please use a separate sheet of paper(s) and attach it to the questionnaire.

To verify the authenticity and ethical issues of this research project, please contact Ms Clarissa Graham [cgraham@sun.ac.za; 021 918 4111] at the University of Stellenbosch Business School.

Kindly return the questionnaire to me.

Yours faithfully,
Mfusi Mjonono

Contact details:
Mfusi Mjonono: Cell 078 456 2973, Email: mmjonono@gmail.com/ 13744488@sun.ac.za
Nyankomo Marwa: Cell 07749453141, nyankomo@sun.ac.za

SECTION A: GENERAL INFORMATION

1. Is your institution a bank finance institution or a non-bank finance institution?

_____

2. What position do you hold within the institution? _____

3. How long have you been with institution?

Number of years	Code	Tick
1-3	1	
3-5	2	
5-10	3	
More than 10	4	

SECTION B: INDUSTRY INVOLVEMENT

4. Which industry do you represent?

_____

_____

_____

_____

5. What is your role in the industry?

_____

_____

_____

_____

6. How many farmers do you represent?

Type	Code	Tick
Black producers	1	
White producers	2	
Total	3	

7. Where are the locations of these farmers?

_____

_____

_____

_____

8. What services do you provide to farmers?

_____

_____

_____

_____

_____

_____

_____

_____

SECTION B: FINANCING

8. Does your institution provide financial support to farmers (Yes or No) _____

6. If yes to question 5 above, what type of financial support does your financial institution provide?

Type	**Code**	**Tick**
Black producers	1	
White producers	2	
Both	3	

5. What type of borrowers to do you deal with?

Type of farmers	**Code**	**Reasons**
Smallholder farmers	1	
Commercial farmers	2	
Both	3	

6. What facilities does your institution provide to farmers?

Type	Code	Tick
Mortgage	1	
Term loans (e.g. for implements, vehicles)	2	
Overdraft	3	
Insurance	4	
Other: specify	5	
	6	
	7	

7. Do you get good quality applications from your clients? If no, why or what are the reasons?

_____

_____

_____

_____

_____

_____

8. What are document requirements for your loans?

Requirement	Code	Tick
Proof of income	1	
Banks statements	2	
Identity documents	3	
Business Plan	4	
Financial Statements	5	
Proof of address	6	
Other: Specify	7	
	8	
	9	

9. What are other conditions for your loans?

_____

_____

_____

10. What are the sizes of loans you provide to farmers?

Loan amount	Code	Tick
Less than 50 000	1	
50 000 – 100 000	2	
100 000 – 500 000	3	

500 000 – 1 000 000	4	
More than 1 000 000	5	

11. How much interest do you charge for your loan?

Services	**Code**	**Tick**
5-9	1	
10-15	2	
15-20	3	
Above 20	4	

12. Do you ask for security for your loans (Yes or No) _____ and why?

_____

_____

_____

_____

_____

12. What type of security do you ask for your loan?

Type of collateral	**Code**	**Tick**
Land	1	
Cession on the crop	2	
Livestock	3	
Vehicle(s)	4	
Machinery and equipment	5	
Other: Specify	6	
	7	
	8	

13. How much has the institution lent to the farmers so far?

Type of farmers	**Amount**
Small-holder farmers	
commercial farmers	

14. How has the loan repayment performance been in the past few years, Good or Poor_____ and why?

_____

_____

_____

_____

15. What other support/services do you offer to farmers apart from providing funds and why?

Services	Code	Tick
Legal services	1	
Accounting services	2	
Extension	3	
Export	4	
Processing	5	
Packaging	6	
Transportation (produce or inputs)	7	
Financial management advice	8	
Other: Specify	9	
	10	
	11	

_____

_____

_____

_____

_____

16. What do you think are the biggest obstacles/challenges in financing agricultural businesses?

Obstacle	Code	Tick
Lack of access to markets	1	
Lack management skills	2	
Poor business plans	3	
Repayment ability	4	
Moral hazard	5	
Lack of collateral	6	
Lack of technical skills	7	
Poor applications	8	
Lack of financial management skills	9	
Other: Specify	10	
	11	
	12	

SECTION C: TRANSACTION COSTS

17. Please indicate by ticking the costs cost incurred by your institution for lending money to farmers.

Loan related costs	**Code**	**Tick**

Application costs	1	
Administration and processing costs	2	
Loan monitoring costs	3	
Insurance costs	4	
Stationery cost	5	
Legal costs	6	
Travelling costs	7	
Other Specify:	8	
	9	
	10	
	11	
	12	

The end.

Thank you for participating in this survey.

APPENDIX C:

CONSENT FORM: FARMERS

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

CONSENT TO PARTICIPATE IN RESEARCH

Title of research project	**:**	**Investigating Value Chain Financing and understanding of the cost and value to the farmers participating in selected value chains in the Western Cape province of South Africa**
Researcher	**:**	**Mfusi Mjonono**
Research supervisor	**:**	**Dr. Nyankomo Marwa**
Department	**:**	**University of Stellenbosch Business School**
Qualification	**:**	**PhD candidate in Development Finance**

You are asked to participate in this research study. You were selected as a possible participant in this study because of farming experience in apple and pear value chains.

1. Purpose and benefits of the study

The study attempts to investigate what constitute the cost and value to the farmers participating in the value chains and also to investigate if value chain participation has positive effect in relaxing financial constraints to smallholder farmers.

The study is important for the following reasons:

- Adding value to the field of agricultural finance, rural finance, microfinance and related areas of studies at a theoretical as well as a methodological level.
- To suggest workable approaches or modalities in addressing financial access for smallholder farmers.
- To suggest workable approaches in addressing financing bottlenecks in value chain development.
- To provide information to financial institutions on how they could improve financial intervention targeted to smallholder famers.

2. Procedures

Should you volunteer to participate in this study, we would request the following from you:

1. To acknowledge receipt of the questionnaire.
2. To sign this consent to participate in the research.
3. To complete the questionnaire in a more objective manner without any pressure to please anyone but your true opinion as a knowledgeable expert in the field.
4. If you need further clarity on any part or section of the questionnaire you are more than free to discuss that with the researcher.

5. If you are not willing to participate on any part or section of the questionnaire you are more than free to leave that section out.

The expected completion time of the questionnaire is 25 to 30 minutes.

1. The questionnaire will be done face to face with you, however, if you need more time alone to go through the questionnaire, this will be afforded to you, but will be requested to return back the questionnaire within 7 days.
2. The researcher will administer the questionnaire to offer an opportunity to clarify any issues that might not be clear.
3. The researcher will record your responses on the questionnaire and any additional information that might be provided during the interview.
4. The interview will be scheduled with you and will be done at any time and place convenient to you.

3. Potential risks and discomforts

In this study, we anticipate no potential risk; discomforts or any inconveniences to the experts participating in this research. All personal details or feedback received from participants will not be directly associated with the individual participant to ensure total confidentiality.

4. Confidentiality and protection of participants

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of non-disclosure of participating experts' names or organisation they work for or are associated with.

Only the researcher and the study supervisor will have access to feedback received from participants, therefore confidentiality is assured. The researcher is planning to publish results of the study, but that will not contain the names of participants or their organisations.

5. Payment for participation

There shall be no payment made to participants, however, as a way of appreciated your effort in assisting in this research, once the study is completed, we will send you a report with the results and conclusions of the study.

6. Participation and withdrawal

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you do not want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so

7. Contact detail

If you have any questions or concerns about the research, please feel free to contact the researcher on 078 456 2973, Email: mmjonono@gmail.com/ 13744488@sun.ac.za Nyankomo Marwa: nyankomo@sun.ac.za**.**

8. Rights of research subjects

Should you decide to withdraw your consent at any time and discontinue participation, you do this without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the University of Stellenbosch Division for Research Development.

DECLARATION AND SIGNATURE OF RESEARCH SUBJECT

The information above was explained to me by *Mfusi Mjonono* in clear terms. I was given the opportunity to ask questions and these questions were answered to *my* satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

Name of subject or participant: .....

Signature: ..... **Date:** .....

DECLARATION AND SIGNATURE OF RESEARCHER

I declare that I explained the information provided in this document to _____. [He/she] was encouraged, and given ample time, to ask me any questions.

Signature: ..... **Date:** .....

[Please note: if the research subject is not entirely conversant in English and explanation has to be given in another language, the above declarations should give appropriate details. Similarly, should the participant be represented by someone else in the consent process, the declarations have to be adapted accordingly. Consult with your supervisor about the appropriate wording}

APPENDIX D:

CONSENT FORM: INSTITUTIONS

05 February 2018

Request to participate in research

This letter serves to confirm that Mfusi Mjonono (Student No: 13744488) is presently conducting research in order to complete a PhD candidate in Development Finance degree at the University of Stellenbosch Business School. The research title is: Investigating value chain financing and understanding of the cost and value to the farmers participating in selected value chains in the Western Cape province of South Africa. Dr Nyankomo Marwa is supervising the research.

The intended benefit of this research is:

Adding value to the field of agricultural finance, rural finance, microfinance and related areas of studies at a theoretical as well as a methodological level.

- To suggest workable approaches or modalities in addressing financial access for smallholder farmers.
- To suggest workable approaches in addressing financing bottlenecks in value chain development.
- To provide information to financial institutions on how they could improve financial intervention targeted to smallholder famers.

Mfusi Mjonono would like to do the research within your organisation and therefore needs your permission to conduct an interview. The study will be conducted in an ethically sound and responsible manner and will consist of information on costs and value, their perceived costs and value as well as supply and demand of financial services within the selected value chains. It is envisaged that the entire interview will take approximately between 25-30 minutes. The interview will be conducted where and when it is convenient for you.

The research will be done for academic purposes. However, as the research is also deemed to provide useful insight for practice, the researcher will present a summary of the findings to your organisation. All information gathered will be treated as confidential and findings will be reported with the necessary discretion not to cause any harm to individuals and/or the organisation. The identity of your organisation will remain confidential throughout the dissertation and in any future publications derived from it, unless

there is explicit permission from you. The names of employees will remain confidential. Please feel free to suggest any additional restrictions you may deem necessary in respect of the research to protect the interests of the organisation.

Your support is important for the research and it will be highly appreciated if you are willing to allow this research project in your organisation. Please advise whether you would regard the above arrangements as feasible. Please do not hesitate to contact the researcher or supervisor on the numbers listed below should you require any additional information regarding the above arrangements. We look forward to hearing from you and thank you for your kind consideration of this request.

Kind Regards

Dr Nyankomo Marwa

Research Supervisor

University of Stellenbosch Business School

	Researcher	**Supervisor**
Name	Mr Mfusi Mjonono	Dr Nyankomo Marwa
Institution	**University of Stellenbosch Business School**	**University of Stellenbosch Business School**
Contact No:	0784562973	0749453141
E-mail:	mmjonono@gmail.com	nyankomo@sun.ac.za.